

SECOND

43

ANNUAL REPORT,

OF THE

PRESIDENT AND MANAGERS.

TO THE

MONONGAHELA NAVIGATION

COMPANY;

Presented January, 1840.

WITH THE

ACCOMPANYING DOCUMENTS.

PITTSBURGH:

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1840.

OFFICERS.

PRESIDENT,—JAMES CLARK.

SECRETARY,—S. F. VONBONHORST.

TREASURER,—JOHN D. DAVIS.

MANAGERS.

WM. EICHBAUM,	THOS. BAKEWELL,
WM. WADE,	JAMES MAY,
JOHN FREEMAN,	J. L. BOWMAN,
LEWIS PETERSON,	J. L. DAWSON,
JOHN TAYLOR,	WM. F. COPLAN.

TO THE STOCKHOLDERS

OF THE

MONONGAHELA NAVIGATION COMPANY.

THE Board of Managers of said Company, (in the absence of the President, who is detained in Harrisburgh by his official duties,) respectfully submit the following

REPORT:

As no previous report of the proceedings of this Board has been published, it has been deemed expedient to commence this Report with the earliest proceedings of the Company, that the Stockholders may be in possession of all the information which the Board is able to communicate.

The act "to authorize the Governor to incorporate a Company to make a lock navigation on the River Monongahela," was passed on the 31st day of March, 1836. This act confers upon the Company the usual privileges of a corporation, for the purpose of making a slack water navigation, by dams and locks, suitable for the passage of steamboats, barges and other craft, between the City of Pittsburgh and the Virginia state line. And if the right be procured from the proper authorities of the State of Virginia, the Company is authorized to extend the improvements from the Pennsylvania state line as far up the Monongahela River as may be deemed practicable.

Under the provisions of the said act, stock was subscribed, a charter obtained, and the Company was duly organized by the election of the proper officers on the 10th day of February, 1837.

With the intention of preparing for a vigorous prosecution of the work, the Board of Managers, in April, 1837, engaged the services of W. Milnor Roberts, Esq. a gentleman of much ex-

perience on important public improvements in this State, and of acknowledged reputation as a Civil Engineer. But the derangements in the money-concerns of the country, which occurred shortly afterwards, induced the Board to delay for a while the survey of the River, and in consequence of a continuous succession of freshets and high water in the Monongahela, during the proper season for exploration, the Board finally resolved to postpone all further action relative to the survey during that year.

The same adverse circumstances, which had prevented the making a survey for the contemplated improvements in 1837, continued to operate throughout the spring of 1838. And it was not until the month of July, in that year, that the Engineer formed his corps of assistants and commenced operations, after which time no season could be more favorable for an exploration. The Monongahela became unusually low, affording the Engineer a very favorable opportunity of examining the whole bed of the river, and of selecting the best sites for the necessary works. The report made by Mr. Roberts of the survey, together with the accompanying maps, profiles, plans, and specifications, were submitted to the stockholders for their inspection, at the last annual meeting, all of which have been approved and adopted by the President and Managers, and, it is hoped, may prove satisfactory to the Company.

The result of this exploration confirmed the previous surveys which had been made of this important stream; one by a corps of United States Engineers, directed by Doctor Howard, and the other by order of this state, under the control of E. F. Gay, Esq.

Copies of the maps prepared by both of these eminent Engineers are in the possession of the Company, and were found of great use in preparing the surveys which form the basis of the present work. From them it would appear that the distance from Pittsburgh to Brownsville, along the line of survey, is $55\frac{45}{100}$ miles, and the ascent in the river $33\frac{55}{100}$ feet.

The distance from Brownsville to the Virginia line is $35\frac{11}{100}$ miles, and the ascent $41\frac{4}{100}$ feet, making the total length of the proposed improvements $90\frac{57}{100}$ miles, and the total ascent $74\frac{59}{100}$ feet.

The river is a plane of easy descent, interrupted at intervals by ripples or shoals, formed from the gravel deposited at the outlets of the tributary streams. The average descent between Pittsburgh and Brownsville being $\frac{6}{10}$ of a foot per mile. Above Brownsville it is $1\frac{22}{100}$ feet per mile; and averaging throughout $\frac{82}{100}$ of a foot per mile. The greatest natural descent in any single ripple on the lower division is at the mouth of Maple Creek, (3 feet,) and in the upper division, at the mouth of Cheat

River, (6 feet.) The greatest extent of natural pool is formed by the shoal below Cookstown, which backs the water eight miles.

The members of the Board being unanimous in their opinion that the preservation of good faith with all who may be employed by the Company, as well as sound policy, dictated the propriety of keeping the pecuniary liabilities of the Company within its undoubted means, resolved to put two dams—and but two at present—with the two adjoining locks and other necessary works, under contract. And that the greatest benefit to the stockholders and the public may be derived from the works when completed, they determined to begin next above Pittsburgh, and continue the improvement up the river, with as little delay as the funds of the Company will warrant. It was determined to make the dams of timber, 12 inches square at the smallest end, fastened together with iron bolts, filled with stone, and covered with 2 courses of oak plank, four inches thick on the up stream side, and spars flattened to eight inches thick on the lower side, and they will be finished with sheet piling and graveling. They are to have broad bases and flat slopes on each side of the wier or comb. Experience has proved that this plan of dams, when faithfully constructed must be permanent.

The locks are to be built of cut stone, raised 7 or 8 feet above the tops of the adjoining dam, with gates resting on rollers and worked by chains and capstans. The outside walls to be protected by cribs filled with stone, which are to be extended so as to form pier heads both above and below the lock and dam.

The Board of Managers originally determined that the locks should be constructed 180 feet long by 40 feet wide within the chamber, with 5 feet depth of water upon the mitre sills, the height of the dams being in the original charter restricted to 4½ feet. The Board was subsequently, however, induced to enlarge the locks to the dimensions of 190 feet long by 50 feet within the chamber, with 5 feet of water on the mitre sill, the legislative sanction having been obtained to the increasing the height of the dams to 8 feet. For a full and able statement of the reasons which led the Board to make this alteration, and of the probable benefits thence resulting, the Board refers to the report of the Engineer presented herewith.

When the Engineer had matured his plans, and the Board had examined and approved them, directions were given to advertise for bidders for the work. This was done extensively in various parts of the country, and on the 4th day of December, 1838, proposals were received from a number of contractors for building the two dams and two locks, with their appurtenant works.

The several jobs have been let out at fair prices to contractors who came well recommended for skill, energy, and perseverance.

The Board respectfully refers the stockholders to the Report of the Engineer for full details of the character of the Monongahela river and its valley, and for further particulars and dimensions of the works contemplated, with their location and estimated cost. They may, however, be allowed to remark that no river in the state is so well adapted for an artificial steamboat navigation, by dams and locks, as the Monongahela. It is indeed a beautiful stream, meandering through a very fertile, healthy, and thickly populated country; and it has not an island in it for nearly 100 miles upward from its mouth.

At an early period after the organization of the Company it was discovered that from haste and inattention there were several omissions in the charter which would render it difficult to enforce its provisions, while some restrictions were inserted which would materially interfere with the utility of the improvements as a means of navigation, and prevent the possibility of its affording any compensation to the stockholders for the risk of an investment therein.

The most injurious of these restrictions was that which limited the height of the dams to 4½ feet; for to complete the navigation from Pittsburgh to Brownsville on this plan would have required eight dams, and between that point and the Virginia line nine dams, making in all seventeen; but by the adoption of eight feet dams only ten would be requisite. The estimated difference of expense in the construction in favor of the higher dams would be on the lower division upwards of \$114,000, and on the whole line more than \$250,000.

It has been ascertained that locks of 8 feet lift can be passed in nearly the same time as those of 4½ feet lift—say about 15 minutes—so that there would be a saving of time, by adopting the high dams, of 3½ hours in every trip between Pittsburgh and the Virginia line, while the risk and wear and tear of the boats would be proportionally reduced. The saving of labor to the Company would be an important item, and with the diminished expense of repairs would probably amount to 5,000 dollars per annum.

After much consultation on this subject, the President was directed to prepare a memorial to the Legislature asking for such alterations in the charter as would enable the Company to prosecute the work on the most approved plan; and on the 7th Dec. 1838, after advising with the Engineer and the Secretary, Judge Patton, he presented the memorial, a copy of which is appended

to this report, the attentive perusal of which, it is hoped, will remove the objections which have existed in the minds of some of the Stockholders to one of the most important alterations, and clearly prove the necessity for modifying many of the clauses of the original charter.

By the exertions of the senators and members of the Legislature from this and the adjoining counties, aided by the influence of the President of the Company, the amended charter was got through both houses, and on the 24th of June, 1839, received the signature of the Governor.

As some apprehension was entertained that raising the dams might impede the navigation during heavy floods, and expose the property on the banks of the river to damage from the same cause, the attention of the Engineer was particularly directed to these points. The following extracts from his correspondence with S. Welsh, Esq. will show his views of this question.

“The floods in the Green river rise from 40 to 50 feet; and in the Kentucky river from 30 to 55 feet. The Licking river having more descent seldom rises over 40 feet.

“There are several mill dams upon the Licking from 6 to 10 feet high. When the river rises from 8 to 12 feet, or higher, (about 5 feet on the dams,) *flat boats with full loads* of iron or agricultural produce pass over them without inconvenience.—When the water is 5 feet or more upon the wier of the dams, the surface below rises so as nearly to coincide with the surface above. *A canoe could pass with safety.*”

“When the water runs so as to be 8 or 10 feet deep on the wier of the dams, the surface below will come up nearly to the same level as that above, (the fall will be distributed along the pool,) and steamboats may pass up or down over the dams. When the water rises much above this there will be no perceptible difference between the level of the surface above and below the dam, and the current will not be strong enough to act injuriously upon the banks of the river, or upon the works connected with the dams.”

These views are corroborated by the reports of E. F. Gay, Esq. with reference to the slack water on the Conestoga creek; and the experience of the chief Engineer on the Lehigh, Schuylkill, Susquehanna, and Kiskeminitas.

The other most important variations in the new charter are thus set forth in the report of the Engineer:

The amended charter of the Company authorizes the receipt of tolls when any portion of the navigation is completed, and provides that the net dividends on the stock shall not exceed 12 per cent. per annum.

The Company are also permitted to set apart a contingent fund for the purpose of defraying the expenses of extraordinary repairs, or other unforeseen expenditure, to which they may become liable—the sum of 20 per cent. of their tolls, interests, rents, or profits, annually, until the said contingent fund shall amount to fifty thousand dollars—but in the annual abstract of its amounts, laid before the Legislature, the amount of such contingent fund shall be set forth.

In case the Commonwealth shall at any time purchase the improvements, then the Commonwealth is to pay to the Company such sum or sums of money as, together with the net dividends, shall amount to the expense incurred in constructing said improvements, and keeping it in repair, with 8 per cent. interest per annum thereon.

The Company have the privilege of purchasing and holding such lands as may be necessary to the full use and enjoyment of the water rights secured to them by the original act of incorporation.

The time for obtaining a charter or grant from the state of Virginia, in relation to their improvements, is extended to the 31st day of March, 1842.

The foregoing are some of the important rights and privileges obtained by the amended charter, placing the Company upon a liberal footing.

For the convenience of reference in future the Board has appended to this report the act of 31st March, 1836, granting the original charter of the Company, and the act of 24th June, 1839, amending the said charter, together with some other legislative proceedings affecting the interests of the Company.

It was originally intended to construct the first lock and dam at M'Clurg's bar, $2\frac{1}{4}$ miles above the Monongahela bridge at Pittsburgh; and the second lock and dam at Braddock's lower ripple, $8\frac{1}{4}$ miles above the first, which would have made an artificial navigation of about 26 miles from Pittsburgh.

After the amendments to the charter were obtained, authorizing the construction of eight feet dams, the Board were induced to change the location of both these works.

The site ultimately chosen for the first lock and dam is about 500 feet above the upper line of Birmingham, being nearly one mile above the Monongahela bridge. Although this location will be rather more expensive than the situation previously contemplated, yet the Board is convinced that the advantages attending the connection of this important improvement with the outlet of the Pennsylvania canal on the Monongahela, without any intervening obstacle—its position at the upper termination of the

liarbor of Pittsburgh—the increased depth of water which will be afforded on the bar now rapidly forming at the mouth of the Two Mile run—and other collateral circumstances—will far more than remunerate the Company for the additional expense incurred by the alteration.

The second lock and dam have been finally located at Brad-dock's upper ripple, above the mouth of Turtle creek. This position will be more advantageous than the first selected, as it will afford two feet more water on M'Farland's ripple,—will be attended with less expense in the construction of the works, and will prevent the liability of the Company for damages from the overflowing of the lands at the mouth or on the banks of the creek, or from the injury which some of the mills situate thereon might have sustained.

The contracts for the two lower locks and dams were entered into on the 17th December. The first lock and dam were allotted to Messrs. J. B. & J. K. Morehead, who have, with the approbation of the Board, subsequently united with Messrs. Fore-man & Copper in the construction of the dam; and the second lock and dam were taken by Messrs. Phillips, Duncan & Dun-can, who, however, abandoned the contract before commencement of the work; and after again advertising for proposals the work was, on the 17th May, 1839, placed under contract with Messrs. Coreys & Adams.

The completion of these two locks and dams will effect an uninterrupted navigation extending 29 miles above the Monon-gahela bridge to Parkinson's ripple, as follows:

Distance from Bridge at Pittsburgh to Lock No. 1,	-	1 mile.
Distance from Lock No. 1 to Lock No. 2,	-	10
Distance from Lock No. 2 to head of slack water navi-	18	
gation, thence resulting, say at Parkinson's ripple,		
Total distance,	-	29 miles.

Lock and dam No. 3 will be located at Lobe's bar, above Elizabethtown. Lock and dam No. 4 at Grey's shoal; and will produce one foot additional depth of water on the pool at Brownsville, below the ripple there. Lock and dam No. 5 will be at Forsyth's ripple, two miles below Brownsville, and will back the water to Fishpot Creek ripple, seven miles above Brownsville.

The tabular statement prepared by the Chief Engineer (see his Report) will show the location and the estimated cost of the ten locks and dams, including water lime and iron—

Say for the Lower Division 5 locks and dams,	\$335,616	18
For the Upper Division 5 locks and dams,	-	239,823 20
Making together	-	\$575,439 38

Exclusive of damages and incidental expenses of the Company, it having been assumed that the locks below Brownsville are of the dimensions of those already contracted for, and the locks above that point 180 feet long in the chamber and 40 feet wide. It may also be observed that the contracts for any new work can, in all probability, be made on better terms than the two lower works are taken at.

For a detailed statement of the operations of the contractors, and the present situation of the works, the Board would refer to the accompanying Report of the Engineer, by examination of which it will appear that Messrs. Moreheads commenced quarrying the stone for the lock in January last, about five miles above this city, but being disappointed in the quarry were compelled to open another at M'Keesport, 17 miles up. A large quantity of timber was procured by them in the spring, but from the unusual succession of freshets they were prevented from finishing the coffer dam till October. On the 15th of that month the masonry was commenced, and on the 15th November the work was suspended and the water let into the coffer dam. During this time the foundation was secured, and two courses of masonry nearly finished, containing about 600 perches of stone.

Estimated amount of work done and materials furnished,	\$16,456 25
Amount paid the contractors,	13,987 72
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Leaving a retained per centage,	\$2,468 53

Messrs. Corey & Adams, the contractors for lock and dam B, commenced quarrying on 12th June. Their coffer dam was began on the 20th of August and completed on the 21st Sept. The timber foundation was began on October 3d, and the masonry was commenced on the 10th October. On the 28th Nov. the work was suspended and the water allowed to flow into the coffer dam. The foundation is nearly completed, and about 225 perches of masonry are laid.

Estimate of work done and materials provided,	\$9787 87
The payments made amount to	8334 40
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Leaving a retained per centage of	\$1453 47

The above payments are exclusive of the amount paid for water lime—say	\$1625 00
For iron work,	1039 65
And for pattern for quoin,	6.00
<hr/>	
Together making	\$2670 65

Which belongs to the expenses of construction, and making an aggregate disbursement on that account of \$24,992 77, as will

more fully appear from an examination of the Treasurer's account hereunto annexed.

According to the report of the Engineer the total estimated cost of the two locks and dams now under contract, including iron work and water lime, but exclusive of damages, salary of Engineers and officers, and incidental expenses, would be for

Lock No. 1, (A)	-	-	\$45,431 50
Dam No. 1,	-	-	32,215 00
			<hr/>
Lock No. 2, (B)	-	-	\$49,608 70
Dam No. 2,	-	-	29,566 80
			<hr/>
Total estimated cost of work now under contract,			79,175 50
			<hr/>
			\$156,822 00

If the ensuing season should be favorable for the operations of the contractors, and the requisite funds can be collected from the State, the U. S. Bank, and other stockholders, it is fully expected that these locks and dams may be completed in the spring of 1841.

It is desirable that a part (if not the whole) of the third lock should be constructed before the second lock and dam are finished, as the expense of laying the foundation and the lower courses of masonry would be much increased by working in the deep water which would then exist. The expense would probably be about \$12,000, and the final completion of the work accelerated at least one year. Unless, however, an increased subscription of stock can be obtained from individuals, or the State, the Board would not feel itself justified in recommending any further extension of the works during the present distracted state of the financial affairs of the community.

Among the advantages resulting from the present location of lock and dam A, together with the adoption of the higher dams, the construction of a dry dock at that point for the repair of steamboats is, in the opinion of this Board, one of the most important, and would be attended with very small expense, as it would require little more than a wall or planked crib to be carried from the lower end of the lock to the river bank, and a set of gates to be inserted in the guard wall at the head of the lock, with the requisite sluices and paddle gates.

With the exception of the dry dock recently completed at Louisville, there is no point on the Ohio which affords equal convenience for that purpose with that proposed by the Board; and although the necessity of the case has led to the adoption of floating docks for repairing boats, yet from the superior accommodation presented by a dry dock, if properly constructed, and

the small expense of executing, attending and keeping it in repair, no doubt can exist of its being at once a benefit to the community and a source of considerable revenue to the Company.

It is also worthy of consideration that the back water from the Allegheny, which would frequently obstruct the action of any water mills that might be constructed with a view to employ the surplus water at this lock, would not interfere in any degree with the operations of a dry dock.

By reference to the statement of the Treasurer, it will be found that three instalments of \$5 on each share have been called for. The total number of shares subscribed is 3161, which may be classed as follows:

Commonwealth of Pa.	500 shares, 3 instalments, each \$5,	\$7,500
U. S. Bank of Pa.	1000 " " "	15,000
Mon. Bk. of Browns.	100 " " "	1,500
Individual stockholders	1551 " say -	\$23,365
W. M. Roberts,*	10 " paid in full,	500 23,865
Making the whole amount called in		\$47,865

Of this amount the following sums have been received, viz:

Commonwealth of Pennsylvania,	- - -	\$7,500
United States Bank of Pennsylvania,	- -	15,000
Monongahela Bank of Brownsville,	- -	1,500
Individual stockholders,	-	\$12,307
W. M. Roberts,* in full,	500	12,807
Leaving a balance due on individual subscriptions of		\$36,807

Leaving a balance due on individual subscriptions of \$11,058

From the decease, removal or bankruptcy of some of the subscribers, a portion of this amount, embracing 160 shares, may be considered as totally lost to the Company and the shares forfeited.

Some of the other stockholders have withheld payment in consequence of the general embarrassments that have defeated the calculations of the most circumspect; many of these will, in the opinion of the Board, meet their engagements to the Company, as soon as an improvement in the situation of affairs will admit of their diversion of so much of their capital from its present investments. A sense of duty towards the state and the stockholders, compelled the Board to commence legal proceedings in those cases where they deemed a further indulgence might be attended with hazard to the interests of the Company.

It is with sincere regret that the Board are under the necessity of stating, that some of the subscribers to the capital stock of the

* This amount was subscribed by Mr. Roberts, being the compensation allowed for loss of time and travelling expenses previous to commencement of survey.

Company refuse utterly to comply with their engagements, on the alleged ground of informality in the proceedings of the Commissioners appointed to receive subscriptions, and of the extended powers granted to the Company by the amended charter; thus endeavoring to avail themselves of their own previous omission to comply with the literal terms of the charter, and seeking in the benefits which the Company will derive from the liberality of the Legislature an excuse for their withdrawal from this important undertaking.

On these points the Board, at an early period, obtained the opinion of the most able counsel, and in pursuance of their advice have taken the most efficient means in their power of procuring a speedy decision of the question, by the proper tribunal.

The disbursements of the Board may, with propriety, be classified under the following general heads, for the items of which the Board would refer to the Treasurer's statement, viz:

Expenses previous to the commencement of the survey,		\$1,070 43
Expenses of survey, including Engineer's salary for 1838,	\$3,822 16	
Deduct amount received for boat, &c.	115 00	3,707 16
Expenses of engineering department for 1839,		3,982 37
Expenses of construction,		24,992 77
Contingent expenses 1838,	\$1,070 75	
Contingent expenses 1839,	1,351 73	2,422 48
 Making together,		 \$36,175 21
Which deducted from the receipts of the Treasurer for stock, per former statement,		36,807 00
 Will leave a balance in his hands of		 \$631 79

In relation to some of the items of this account, which may, on a cursory view, appear rather larger than necessary, the Board would respectfully remark, that accurate surveys, although expensive, are absolutely necessary to the prosecution of an undertaking like the present; that the cost of such surveys and the expenses antecedent to the commencement of the work, were indispensable to its successful progress, and that the benefit resulting from them will apply to the whole improvement, although the outlay appears to bear upon the limited portion now under contract. The Board would further observe, that it has been their earnest endeavor to exercise as strict economy, in all respects, as the nature of the work and the skill requisite for its satisfactory construction would permit, and that the First Assistant Engineer, Mr. M'Dowell, is the only person in the employ of the Company, who devotes his whole attention to its affairs;

the other officers being only compensated in proportion to the time occupied by their respective duties.

The great importance of this improvement cannot be fully appreciated until after some portion of it shall have been completed and put into operation. But when we bear in mind that it is designed to give a certain navigation to steamboats of the largest class, at all seasons of the year, when not obstructed by ice, and that the average cost of it will not exceed six thousand dollars per mile, being about equal to that of an ordinary turnpike road, its great utility, compared with its cost, will be too obvious to require further explanation.

If all our reasonable expectations respecting it are not doomed to disappointment, this artificial steam navigation will be of great value, as an example of what may be effected by an improvement of this character. All who are connected with or interested in the navigation, trade or manufactures of that region of country of which Pittsburgh may be considered the centre, are surely sensible of the injurious consequences resulting from the uncertainty of navigation in the Ohio River. Its interruption or cessation, at times when unexpected, and the valuable period of such interruptions, not unfrequently occasion great disappointments and heavy losses to the business of the whole western country. If for this uncertain and precarious navigation can be substituted another, which shall at all times afford a certain passage for steam-boats of four or five hundred tons burthen, at a cost not exceeding that of a common road, or one-third of that of an ordinary canal, the great advantages of such an improvement must be manifest to all. Such will be the result, the Board confidently believe, of a successful prosecution of the work in which the Company are now embarked. With such results in prospect, the undertaking merits and will doubtless receive the support necessary to its successful completion.

For the peculiar relation which the completion of this navigation will have upon the coal trade of the Monongahela, the Board would refer to the report of the Engineer, and conclude their observations with an earnest hope that the succeeding year will witness such progress in their undertaking, as will convince the most sceptical of its importance to the general welfare, and furnish reasonable ground to expect a fair compensation for the state and private capital embarked therein.

WM. EICHBAUM,
President pro tem.

REPORT

OF

W. MILNOR ROBERTS, Esq.

Dated Dec. 24th, 1839.

To the President and Managers of the Monongahela Navigation Company:

GENTLEMEN,—In obedience to a resolution of the Board, dated Nov. 27th, 1839, I have the honor to present the following Report:

In order to afford the Board and stockholders convenient means of reference to all the proceedings connected with the Engineer department, it has been deemed advisable to include a synopsis of former reports, forming a condensed statement of our operations to the present period.

My appointment as Engineer of the Company is dated in April, 1837; but owing to the unfavorable nature of that season it was finally determined at a meeting of the Board held Sept. 27th, 1837, to postpone the survey of the river until the following spring.

The surveys were commenced July 24th, and finished Sept. 18th, 1838. The instrumental examinations were conducted by my assistants, Mr. N. M'Dowell and Mr. Robert W. Clarke. In accordance with a resolution of the Board, I made a report, dated Sept. 4th, 1838, containing "estimates of the expenses of locks of three different sizes, together with my views in full of the advantages and disadvantages of each." On the 23d of October a general report was read to the Board, accompanied by maps and plans. The plans were then adopted, and directions were given to advertise for proposals for the construction of two locks and dams. Proposals were accordingly received until the 4th December inclusive, and the work was soon after put under contract.

Upon instituting inquiries in regard to steamboat locks, as connected with slack-water navigation, it appeared that the system was yet in its infancy. Kentucky was the only state in the Union that had entered extensively into a system of artificial

steamboat navigation. She had then in progress (and partly completed) the improvement of the Kentucky, Licking, and Green rivers. Ohio had commenced the improvement of the Muskingum river. The size of the locks adopted in Kentucky was 175 by 38 feet, and on the Muskingum 175 by 36 feet. The size of the steamboat locks at Louisville is 190 by 50 feet.

It was ascertained that the larger class of boats navigating the river between Pittsburgh and the Mississippi, carrying from 300 to 800 tons, and drawing from 6 to 10 feet water, were from 180 to 225 feet in length, and from 45 to 55 feet wide; that the medium class of boats, such as ply between Louisville and Pittsburgh, and carrying from 100 to 200 tons, and drawing from 4 to 5 feet water, were from 145 to 165 feet in length, and from 32 to 36 feet wide; and that the smallest class of boats then in use, carrying from 50 to 80 tons, and drawing from $2\frac{1}{2}$ to $3\frac{1}{2}$ feet water, were from 135 to 145 feet in length, and from 24 to 27 feet wide. It further appeared that steamboat builders were adding to the length and width of vessels without increasing the depth of the hold.

With the preceding data established, the following dimensions were adopted as the basis of a set of calculations which were given in detail in my report, viz:

Large Locks,—chamber,	-	-	-	190 by 50 feet.
Medium do.	-	-	-	175 by 38 "
Small do.	-	-	-	146 by 28 "

The examinations and calculations led to the conclusion that a *medium* size would best accommodate the trade of the Monongahela river, and the Board accordingly adopted the size of 180 by 40 feet, and the plans were drawn to correspond.

The distance from Pittsburgh to Brownsville, along the line of survey, is $55\frac{49}{100}$ miles, and the ascent in the river $33\frac{55}{100}$ feet. The distance from Brownsville to the Virginia line is $35\frac{11}{100}$ miles, and the ascent $41\frac{4}{100}$ feet; making the total length of the proposed improvement $90\frac{57}{100}$ miles, and the total ascent $74\frac{59}{100}$ feet. The river is a plane of easy descent, interrupted at intervals by ripples or shoals, formed from the gravel deposits at the outlets of the tributary streams; the average descent between Pittsburgh and Brownsville being six-tenths of a foot per mile. Above Brownsville it is $1\frac{22}{100}$ ft. per mile, and averaging throughout $\frac{82}{100}$ of a foot per mile. The greatest natural descent in any single ripple on the lower division is at the mouth of Maple creek, (3 feet)—and in the upper division, at the mouth of Cheat river, (6 feet.) The greatest extent of natural pool is formed by the shoal below Cookstown, which backs the water 8 miles.

The country through which the Monongahela river flows is generally of a rolling character, abounding in bituminous coal. Much of it is well cultivated, and the whole valley may be considered valuable as an agricultural region. Its head waters abound also in iron ore, and white oak timber of an excellent quality.

The flats along the river alternate from one side to the other, changing with every bend—no instance occurring where extensive bottoms appear on both sides at the same point. The lower bottoms seldom exceed 300 yards in width, the widest being less than half a mile. Those of the greatest extent occur near Pittsburgh, at Braddock's fields, at the mouth of the Youghiogheny river, and near Cookstown.

Above Brownsville the flats are usually from 50 to 200 yards in width.

The river banks on the lower division are from 30 to 50 feet high, except in two or three instances, where they are not more than 25 feet. On the upper division they range from 35 to 55 feet above low water.

The average width of the river below Brownsville is 900 feet, and above that point 600 feet.

In ordinary freshets the stream rises from 20 to 24 feet—in very high floods 30 feet—and at one time in 1824 the water rose at several points to the height of 40 feet. No flood since that period has exceeded 30 feet, except where the water may have been temporarily dammed by masses of ice.

A comparison of the natural elevation of the flats with the height of the freshets shows that the land will be but little exposed to overflow from dams of moderate size. The only material subject of damage arises from the location of some of the mills dependent upon the head and fall obtained at the ripples, which must of course be destroyed upon the completion of the slack-water.

Between Pittsburgh and Brownsville the bed of the river consists for the most part of rounded gravel, overlaying horizontal strata of limestone. The rock on this part of the river is not very solid. Above Brownsville the rock is more exposed, and considerably more compact, affording better foundations for locks and dams.

In the original charter of the Company the height of the dams was limited to 4½ feet; and much obscurity existed in regard to the meaning of this part of the act. It might be construed to apply to the whole height of the dam above the bed of the stream, or to the height from the surface of one pool to the surface of another.

Upon the latter assumption, to overcome the fall from Pittsburgh to Brownsville it would have involved the necessity of constructing eight dams,—and above Brownsville nine dams,—or *seventeen* in all; whereas by the adoption of eight feet dams *ten* would be sufficient. The estimated difference of expense in favor of the higher dams was, on the division from Pittsburgh to Brownsville, \$114,218 70, and on the whole line, \$250,211 50; and as I conceived that the character and utility of the improvement depended in a great degree upon a correct decision as to the height of the dams, pains were taken to obtain all the practical knowledge on the subject that was available.

The following information was derived from S. Welch, Esq. Chief Engineer of the state of Kentucky, who was at that time, and is at present, in charge of the public improvements on the Kentucky, Licking, and Green rivers.

“The floods in the Green river rise from 40 to 50 feet, and in the Kentucky river from 30 to 55 feet. The Licking river having more descent seldom rises over 40 feet.

“There are several mill-dams upon the Licking from six to ten feet high. When the river rises from eight to twelve feet, or higher, (about five feet on the dams,) *flat-boats, with full loads* of iron, or agricultural produce, pass over them without inconvenience. When the water is five feet or more upon the wier of the dams, the surface below rises so as nearly to coincide with the surface above. *A canoe could then pass with safety.*

“When we can do so conveniently we make the lifts of our locks about fifteen feet, but they vary from *ten* to *eighteen*.

“All the works in our rivers will be covered with water during high floods. We raise our lock-walls ten feet on the Kentucky, and eight feet on the Licking, above the top of the dam. The abutments will be raised a little higher than this.

“When the water runs so as to be eight or ten feet deep on the wier of the dams, the surface below will come up nearly to the same level as that above, (the fall will be distributed along the pool,) and steamboats may pass up or down over the dams. When the water rises much above this there will be no perceptible difference between the level of the surface above and below the dam; and the current will not be strong enough to act injuriously upon the banks of the river, or upon the works connected with the dams.”

The following facts bear upon the same question. They are taken from a report made by E. F. Gay, Esq. Civil Engineer, relative to a survey made along the Allegheny river in 1828. His remarks refer to the slack-water navigation constructed on Conestoga creek. They have likewise been the result of prac-

tical observations, and on that account should command consideration. He states "that previous to the improvement of that stream, high water-marks were seen along its banks from *ten* to *twelve* feet above the surface of common low water. This was said by all to be the usual height of the freshets; and from this fact the possibility of constructing permanent dams on the stream was doubted by many. The dams however were built, varying in height from *ten* to *fourteen* feet above the bed of the stream; and in no instance since their construction has a rise of the freshets in the pools exceeded *three* feet; whereas in the unimproved parts of the river the same complaints are heard of its rise as formerly.

"This extraordinary difference is easily accounted for by its increased surface in the pools, and its unobstructed discharge over the dams."

These facts corresponding with my own observations on the Lehigh, the Schuylkill, the Susquehanna and the Kiskeminitas rivers, upon which dams had been built from four to thirty feet in height, induced me to urge the Board to the adoption of a plan comprising the fewest dams. To strengthen the arguments in favor of this position, the following calculations were presented:

The fact being well settled that locks of 10, 15, and even 30 feet lift, as upon the upper Lehigh navigation, could be passed in nearly the same time as those of 5 or 6 feet lift, it was assumed that 15 minutes would be lost by a vessel in passing each lock; so that by substituting 10 dams, of from 7 to 8 feet in height, instead of 17 dams of $4\frac{1}{2}$ feet, there would be a saving in time of $3\frac{1}{2}$ hours on every trip between Pittsburgh and the Virginia line, thus allowing an hour and three-quarters more time at each end for loading and unloading. The wear and tear of boats occasioned by passing through the locks would be reduced in the proportion of 17 to 10. The difference to owners of steamboats using the navigation would probably be 15 per cent. or more, in favor of the higher dams.

The yearly saving to the Company would also be an item of considerable consequence. Allowing two men to each lock, there would be fourteen lock tenders less required, and the *keeping up* of seven locks, seven dams, seven lock-houses, and the contingencies connected therewith, would be forever avoided. The annual saving would be at least five thousand dollars. The risk of accidents, by which the navigation might be at times interrupted, would be reduced nearly in the same ratio with the decreased number of dams.

The Board having approved of these general views in regard to the character of the contemplated improvement, left the question

as to the height of the dams open, and made an application to the Legislature, for the privilege of constructing them of a height not exceeding eight feet. Through the indefatigable exertions of the President of the Company, this privilege was granted by the last legislature, but with a proviso attached, requiring the locks below Brownsville to be built 190 feet long by 50 feet wide. The size of the chamber previously adopted by the Board, was 180 feet by 40 feet. This change rendered it necessary to make a new set of plans, to meet the requirements of the amended charter. There were other and most important changes made in the charter, which it is not deemed necessary to recapitulate in this place.

The contracts for the two lower locks and dams were entered into December 17th, 1838.

The first lock and dam (letter A.) was let to Messrs. J. K. & J. B. Moorhead. The second lock and dam was let to Messrs. Phillips, Duncan & Duncan, who eventually abandoned the work without having made a beginning. They were afterwards, by order of the Board, advertised for re-letting, and finally allotted to Messrs. Coreys & Adams. The contract with them was entered into on the 17th of May, 1839.

The Messrs. Moorhead commenced quarrying, at a point on the western side of the Monongahela River, five miles above Pittsburgh, January 20th, 1839. Some very fine stone were obtained at this quarry, but it proved expensive in working, and the contractors abandoned it and opened a quarry above M'Keesport, about 17 miles from their work. In the latter part of April and beginning of May, the water in the river became tolerably low; but from the middle of May to the middle of September there was a succession of small freshets, which prevented them from working advantageously at the coffer dams. The building of the coffer dam cribs was commenced June 1st. They were finished and made water tight October 5th, and the laying of the foundation was begun on the following day. On the 15th of the same month the masonry was commenced, and on November 15th the work was suspended and the water permitted to flow in and cover it.

The contractors succeeded in laying and securing the foundation, and finished in part, two courses of masonry; nearly six hundred perches being laid.

After the coffer dams were completed, the water was pumped out of the pit by a steam engine, working three screw pumps. Each pump is 16 feet long and 30 inches in diameter, having a wooden screw in the interior turning eleven times in the length of the pump. When they were in full operation, they made about 50 revolutions per minute, discharging 300 cubic feet, or

about 2100 gallons, per minute. The water being raised from 7 to 9 feet above the bottom of the pit. The middle pump was driven by a shaft and cog wheel. The others were driven by chains working on pulleys, connected with the middle pump. After the machinery was tolerably well perfected, all the water in the pit, together with the current leakage, was pumped out in eighteen hours. The pit contained about 260,000 cubic feet, or 1,820,000 gallons.

The original location of this lock and dam was about two miles above the Monongahela Bridge; but, afterwards, the Board were induced to change the site, and it was removed one mile lower down, to a point about 500 feet above the upper line of Birmingham. This change of location has necessarily created some additional expense in the construction of the lock and dam, owing to the greater depth of water at the present site. It is, however, advantageous in several respects. As affording a better depth for navigation between the Company's works and the outlet of the Pennsylvania Canal, on the Monongahela River, (as well as on M'Clurg's bar,) and a *rock* foundation for the lock instead of gravel.

Messrs. Coreys & Adams, the contractors for the second lock and dam, commenced quarrying stone June 12th. The cribs for their coffer dams were commenced August 20th, and the coffer dams were completed September 21st. On the 28th of the same month, they began to pump out the water, and on the 30th commenced the excavation of the pit. The laying of the timber foundation was commenced October 3d, and the laying of the masonry, October 10th. On the 28th of November the work was suspended, and the water allowed to fill the pit.

The contractors succeeded in getting in the foundation, with the exception of that part under the sluice gates, in the middle of the chamber, which is not yet finished. They also laid 225 perches of masonry.

The work is not so far advanced as it is at lock No. 1, but as the location is ten miles nearer to the principal quarries, the contractors will be able to deliver the stone with greater facility and thus hasten the completion.

The completion of the two locks and dams will afford an artificial navigation, extending 29 miles above the Monongahela Bridge, as follows, viz:

Distance from Monongahela Bridge, at Pittsburgh, to Lock		
No. 1, - - - - -		1 mile.
From Lock No. 1 to Lock No. 2, - - - - -		10 miles.
From Lock No. 2 to head of slack-water, created by Dam No.		
2, at Parkinson's Ripple, - - - - -		18 miles.
Total distance, - - - - -		29 miles.

Dam No. 2 was at first, provisionally, located at the foot of Braddock's lower ripple; but after the supplement to the charter was obtained, authorizing the construction of eight feet dams, the location was changed to the head of Braddock's ripples, *above* the mouth of Turtle Creek. It will afford two feet *additional* depth of water on M'Farland's ripples. We will thus have more than half the distance to Brownsville rendered navigable by the construction of two locks and two dams.

The fourth dam, at Frey's shoals, will create *one* foot additional depth of water on the pool at Brownsville, below the Brownsville ripple.

In my report of last year, there is an estimate of the probable cost of the Company's improvement; founded on the assumption that locks of *medium* size were to be adopted. The estimated cost between Pittsburgh and Brownsville, with *five* locks and dams, was \$288,699 40; with *eight* locks and dams \$402,918 10. Between Brownsville and the Virginia line, with *five* dams and locks, \$239,813 20; with *nine* dams and locks, \$376,706 00. On the whole route, with *ten* locks and dams, \$528,512 60; with *seventeen* locks and dams, \$778,724 10. These estimates were based on such prices as it had been customary to pay, in this vicinity, for work of a similar nature. The proposals of contractors, were, however, higher than had been assumed, and the work was finally let out at prices considerably above the original estimate.

The estimated cost of the two locks and dams now under contract, at the present contract prices, including iron and water lime, is as follows, viz:

Lock, No. 1, (Letter A.)	-	-	-	-	-	\$45,431 50
Dam, No. 1, (Letter A.)	-	-	-	-	-	<u>32,215 00</u>
Lock and Dam, No. 1,	-	-	-	-	-	\$77,646 50
Lock, No. 2, (Letter B.)	-	-	-	-	-	\$49,608 70
Dam, No. 2, (Letter B.)	-	-	-	-	-	<u>29,566 80</u>
Lock and Dam, No. 2,	-	-	-	-	-	\$79,175 50
Total estimated cost of the two Locks and Dams under contract,	-	-	-	-	-	\$156,822 00

Should the Company be enabled to place other work under contract during the ensuing year, it is probable that they will succeed in obtaining more favorable terms. Labor and provisions are now considerably lower than they were at the time the first contracts were made, and it is not expected that a rise can take place for some time to come.

As we ascend the river, each succeeding dam will cost less, in consequence of the gradually decreased width of the stream; and the cost of the dams will not be varied, whether large or small locks be adopted on the upper navigation. The cost of the locks yet to be built, will, of course, depend upon the size that may be determined upon, above Brownsville.

Dam No. 3 will be located at Lobe's bar, above *Elizabeth*; dam No. 4 will be at Frey's shoal; and dam No. 5 will be at Forsyth's ripples, two miles below Brownsville. This dam will back the water to Fish Pot Creek ripples, seven miles above Brownsville.

In estimating the cost of these five locks and dams, it has been assumed that they are to be built of the same dimensions as those under contract. For the locks above Brownsville, or upon what may be termed the *upper section* of the navigation, the calculations have been made for locks with chambers 180 ft. by 40 ft.

The following tabular statement shows the location of the locks and dams and their estimated cost. The two first, being based upon the contract prices, and the others upon a fair estimate of the probable prices at which the work may hereafter be contracted for. It includes water lime and iron, to be furnished by the Company.

TABULAR STATEMENT.

Lower Section of Navigation,—to Brownsville.

No. Lock & Dam.	LOCATION.	Dist. from Pittsburgh in miles.	Length of Pool in miles.	Estimated COST.
1	Near Pittsburgh, - - -	1	10	\$77,646 50
2	Braddock's ripples, - -	11	12	79,175 50
3	Lobe's bar, - - - -	23	17	60,966 57
4	Frey's shoal, - - - -	40	13½	60,113 52
5	Forsyth's ripple, - - -	53½	8½	57,714 09
				<u>\$335,616 18</u>

Upper Section,—from Brownsville to Virginia Line.

No. Lock & Dam.	LOCATION.	Dist. from Brownsville.	Distance fr. Pittsburgh.	Length of Pool.	Estimated COST.
6	Smith's ripples,	6½	62	5½	\$50,681 78
7	Rice's ripples,	12	67½	7½	49,510 30
8	Sharpneck's ripples,	19½	75	7½	47,600 20
9	Jacob's creek ripples,	27	82½	2½	46,020 40
10	Dunkard's creek do.	29½	85	5½	46,010 52
				<u>\$239,823 20</u>	

Making the total estimated cost of the ten locks and dams, exclusive of the damages and incidental expenses of the Company, - - - - - \$575,439 38

The annexed statement shows the estimated amount of work done, the estimated amount to be done, and the total estimated cost of the work now under contract—also the amount of per centage which has been retained, viz:

NAME OF WORK DONE.	Estimated am't of work done.	Est. am't of work to be done.	Am't retained per centage.	Total estimated COST.*
Lock A, (No. 1,)	\$16,456 25	\$28,975 25	\$2,468 53	\$45,431 50
Lock B, (No. 2,)	9,787 87	39,820 83	1,453 43	49,608 70
	<hr/>	<hr/>	<hr/>	<hr/>
	\$26,244 12	\$68,896 08	\$3,921 96	\$95,040 20
	<hr/>	<hr/>	<hr/>	<hr/>
Dam A, (No. 1,)	.....	\$32,215 00	.....	\$32,215 00
Dam B, (No. 2,)	.....	29,566 80	.....	29,566 80
	<hr/>	<hr/>	<hr/>	<hr/>
	.....	\$61,786 80	.....	\$61,781 80

* The total cost includes Water Lime and Iron Work.

Amount of work done,	- - - - -	\$26,244 12
Amount of work to be done,	- - - - -	130,682 88
	<hr/>	<hr/>
Total estimated cost of work under contract,	-	\$156,820 00

Amount of per centage retained, - \$3,921 96

In addition to the preceding statement, the following payments are properly chargeable to *construction*, viz:

Nathan Harris, for Water Lime,	- - - - -	\$1625 00
W. & H. Hartupee, for Iron work,	- - - - -	1039 65
W. T. M'Clurg & Co. for Hollow Quoin Pattern,	-	6 00
	<hr/>	<hr/>
To be added to the work done,	- - -	\$2670 65

For all other expenditures, including the amount paid to the Engineer department, the Board is respectfully referred to the annual report of the Treasurer of the Company.

It will be observed that the present estimated cost of the locks and dams under contract is somewhat greater than the original estimated cost of the same. This discrepancy is owing to the fact that the contracts were made at higher prices than had been previously assumed, owing to the change required by the Legislature in the size of the locks, from 180 by 40 feet to 190 by 50 feet, and to the change of the site, and the additional height given to the lower dam.

The precise situation of the second dam was not determined when the contract was made, two sites for it being then in view, one below and the other above Turtle creek. The upper location was finally chosen, and adopted by the Board. It is the most favorable of the two, both to the contractors and to the

Company, and likewise to the land-owners at the mouth of the creek, whose property was liable to considerable inundation from the construction of a dam lower down.

From the facility with which stone for the masonry, and for the filling of the dams and cribs, may be obtained at the remaining dams, and from the change which has taken place in the price of provisions and labor since the first contracts were made, it is believed that the work to be let, in future, will cost proportionally less than that which is now in the course of execution.

With a favorable season next year, and a sufficiency of funds, the two locks and dams now building can be completed, so as to be used in the spring of 1841.

Should the Board not feel themselves authorized to contract for another lock and dam, or even for an entire lock, I would respectfully recommend to their consideration the propriety of making arrangements for laying the foundation, and two courses of masonry, by which means the work will be advanced one year. The cost would probably be 12,000 dollars.

Should the foundation of the third dam and the lower courses of masonry be left unfinished until the second dam is raised, and the water backed over the site, a heavy additional expense will necessarily be encountered whenever it is undertaken.

At Lock No. 1, near Pittsburgh, there is a very convenient means of establishing a large *dry dock* for steamboats at an inconsiderable expense. It can be done by running a wall or planked crib from the lower end of the lock to the hill, and introducing a set of gates through the guard-wall at the head. Nothing more is necessary to make it a complete dry dock. I respectfully recommend this matter to the favorable consideration of the Board.

GENERAL PLAN OF WORKS.

The Monongahela improvement, when finished to the Virginia line, will comprise ten locks and ten dams, averaging about eight feet lift. The longest dam will have 1100 feet over-fall. The length of the dams diminishes gradually as we ascend the stream, so that the shortest will have about 500 feet over-fall. Their height, from the bottom of the river to the comb, will be from 12 to 14 feet. They are to be 56 feet wide at the base, with slopes up and down stream of $3\frac{1}{2}$ feet base to one foot rise, the lower portion being built perpendicularly. They are to be composed of round timber, of sufficient size to square one foot at the smaller end, built in crib-work, strongly bolted together with wrought iron bolts. They will be covered on the lower slope with spars,

flatted to a thickness of eight inches,—and on the upper slope, with a double thickness of jointed white-oak plank. A double course of vertical sheet piling is to extend along the whole of the perpendicular part of the dam, at the foot of the upper slope, to be fitted to the rock, or driven into the gravel foundation. Wherever it can be accomplished at any reasonable expense, it is intended to bolt the lower cross-timbers to the rock in the bottom of the river. The cribs are to be entirely filled with good stone, and the upper slope is to be thoroughly gravelled.

It is confidently believed, with the slopes we have adopted, that the floods will not have a tendency to undermine the structure, and that the dam will stand without material repair until the timber decays.*

The locks now in progress will be of cut stone, with chambers 190 feet long and 50 feet wide,—being made in these respects to correspond with those on the Louisville and Portland canal. They are calculated to pass the large class of steamers that are built at Elizabeth, and other points on the river, without loads.

The walls are to be raised eight feet above the top of the adjoining dam, so that in freshets that will swell the water to a depth of eight feet or more on the wier, all the work will be submerged, and vessels or rafts may then pass over the dams in safety. The mitre gates will rest upon rollers running on wrought iron railway arcs secured to the bottom of the lock. They are to be worked by double chains and capstans.

In the middle of the lock chamber there is to be a flood-gate, constructed upon the principle of the hydraulic gates invented by Josiah White, and used on the old Lehigh navigation. This gate is intended to be used for the purpose of clearing out bars which in high floods may accumulate below the locks.

The hydraulic flood-gate consists of two leaves extending across the chamber and working in horizontal quoins fastened to the bottom of the lock, arranged so that when they are not in actual use, the upper or overlaying leaf will be on a level with

* This opinion is founded mainly on the experience which has been had at the Leechburg dam, on the Kiskeminitas river.

The dam at that place was originally constructed with a slope on the lower side of about one and a half to one. With this angle it was found that the water excavated a very deep hole immediately below the toe of the dam, which was undermining the work.

The usual plan of sinking a crib in the space at the foot of the old work was adopted, and the covering timbers were extended over it in such a way as to change the slope to about three to one. It has since appeared that instead of continuing to dig out the material near the dam, the action or re-action of the water has had a tendency to *fill up* the space which existed at the time the crib was completed.

the floor. They are to be worked by the pressure of the water from the upper level. It is admitted under the gates by a sluice through the wall on one side of the lock, and the pressure or head forces them to rise from a horizontal to an inclined position on any desired angle. In this way a small or great depth of water may be permitted to flow over them. When they are raised to a level with the surface of the upper pool, all the mitre gates can be thrown open and fastened back in their recesses.

To lower the flood-gates, the admitting valves are shut, which stops off the pressure from the upper level. The discharging valve is then opened, and the water allowed to flow out from under the leaves, when they gradually descend to a horizontal position. By these regulating valves, which admit and discharge the water, they may be sustained at any desired elevation.

On the outside of the lock-walls, and immediately against them, cribs filled with stone are to be built, to protect them from the effects of ice and drift-wood, and to afford more convenient room for managing the locks when vessels are passing. These cribs are to be extended on the river side, in the form of pier-heads, to some distance above and below each lock.

In cases where it may be considered expedient, provision will be made in the arrangement of the guard-walls at the head of the lock for taking out the water for water-power purposes.

SUPPLY OF WATER.

During the year 1838, the waters of the Monongahela, in common with most of the streams in Western Pennsylvania, were lower than at any former period within the recollection of the oldest inhabitants.

Measurements of the stream were made at different times, in order to ascertain the *minimum* flow. On August 30th, when the stream was generally considered near its lowest stage, the quantity passing at Brownsville was 12,420 cubic feet per minute. All the tributaries, from that point to the mouth of the Youghiogheny River, were then dry at their outlets.

On September 19th it was again measured at Brownsville, when the quantity passing was found to be only 4,500 cubic feet per minute. This was the *actual* period of the lowest water during that extraordinary season.

The lock chambers being one hundred and ninety feet by fifty feet, with lifts of eight feet, there will be discharged, every time a lock is emptied, 76,000 cubic feet. Deducting from this amount, 15,000 cubic feet for the space occupied by the hull of a vessel, estimated at 150 feet by 25 feet wide and 4 feet deep, it will leave 61,000 cubic feet lost in passing each boat, except

in a case where an ascending and descending vessel meet, when the same quantity would pass both. Then allowing one-half of the whole supply of water to be lost by leakage at the dams and additional evaporation from the increased surface exposed, the remainder would be sufficient to pass a vessel every 27 minutes, or 63 every 24 hours. It is not, however, apprehended that the evaporation will be materially, if at all, increased by the completion of the slack-water, as the *depth* will be much greater and the proportional amount of evaporation reduced in consequence. In low water, when the stream is only running to the depth of a few inches on the ripples, the evaporation is greatly increased by the pebbly bottom. And it is only on the ripples that the width of the river, or exposed surface, will be much changed; the banks being generally abrupt along the present pools.

But in the event of a recurrence of a drought similar to that of 1838; or, if when the country bordering on the head waters of the river becomes thickly settled and generally cleared, the supply should fail for a period even of greater length, there is a remedy which can be applied with a certainty of success and at a very trifling expense. By making the artificial pools into temporary reservoirs.

This can be done, whenever the water begins to get low, (should an extended business require it,) by bolting a timber or plank one foot high on top of each dam. Allowing the dams to fill up this additional height, to be used as an available reservoir or succession of reservoirs. These would yield 380,160,000 cubic feet, or sufficient to pass 6,232 vessels in addition to the number which could be passed with half of the *minimum* flow, as ascertained last season.

It is not probable that there will be thirty days in any one year when the natural flow will be so limited. For navigation purposes, there is therefore an abundant supply.

In ordinary times, there will be a very considerable *surplus*, which may be advantageously used for water power. Mills can be erected at the dams; and, if it should be deemed important to provide against any suspension of operations during a season of drought, they may be so constructed as to permit the use of steam power during the interval.

THE AMENDED CHARTER—PROSPECTS OF TRADE, &c.

The amended charter of the Company authorizes the receipt of tolls when any portion of the navigation is completed, and provides that the net dividends on the stock shall not exceed twelve per cent. per annum. The Company are also permitted

to set apart a contingent fund, for the purpose of defraying the contingent expenses of extraordinary repairs or other unforeseen expenditure to which they may become liable, the sum of twenty per cent. of their tolls, interest, rents or profits annually, until the said contingent fund shall amount to fifty thousand dollars, but in the annual abstract laid before the Legislature, the amount of such contingent fund shall be set forth.

In case the Commonwealth shall, at any time, purchase the improvement, then the Commonwealth is to pay to the Company such sum or sums of money, as, together with the net dividends, shall amount to the expense incurred in constructing said improvement and keeping it repair, with eight per cent. per annum interest thereon.

The Company have the privilege of purchasing and holding such lands as may be necessary to the full use and enjoyment of the water right secured to them by the original act of incorporation.

The time for obtaining a charter or grant from the state of Virginia, in relation to their improvement, is extended to the 31st day of March, 1842.

The foregoing are some of the most important rights and privileges, obtained by the amended charter—placing the Company upon a liberal footing.

As soon therefore as the works now under contract are completed, or either of them, they may commence charging toll for the passage of vessels or other craft through the locks.

It has been shown that the two locks and dams afford a navigation 29 miles in length. Until the completion of the remainder of the lower section to Brownsville, this will of course be but a partial public benefit. Its importance is nevertheless considerable. And principally on account of the coal trade to be accommodated. On this portion of the river, as well as on the remaining distance above, nearly every hill is teeming with excellent bituminous coal, and immense quantities are annually shipped to Pittsburgh and to numerous ports along the Ohio and Mississippi Rivers. It is impossible to obtain, with any accuracy, the present extent of this trade, but it is acknowledged by all who are conversant with the subject, to be one of great magnitude.

This business, large as it is now, will necessarily increase with the growth of the towns, and cities, and manufactories, where it is consumed; and, at some future day, as the veins in the immediate vicinity of Pittsburgh become exhausted, resort must be had to the banks higher up the river. Every additional facility

for conveying it to market will naturally increase the demand for the article.

A single fact will show, in a striking point of view, the advantages likely to result to the coal trade, upon the completion of the works now in progress. During the year 1837, a large number of flat boats were loaded with coal, at various points along the Monongahela, but, at that period of the season, when the owners wished to carry it to market, there was not sufficient depth of water on the ripples to enable them to float to the Ohio River. They were consequently compelled to remain, under a constant expense for watching and bailing, until near the close of the year; and when they at length succeeded in reaching the Ohio, many of them were sunk and destroyed, by coming in contact with the ice. The *loss*, from this cause, during that single year, was estimated at Forty Thousand dollars. Had the Monongahela improvement been completed, they might have gone with safety, at a favorable period, and perhaps saved the whole of that amount.

In October of last year, there were 150 flat boats at the coal landings, up the Monongahela River, which had then been waiting upwards of *three months* for a rise of water in order to get to market. A flat boat usually carries 5000 bushels of coal, and requires five hands to manage it; but when lying at the coal landings, one or two men only are necessary to watch and pump it out. There were, then, 750,000 bushels of coal, with 200 men or more; together, constituting a sinking fund for one-fourth of the year.

Estimating the coal at only five cents per bushel, there was the sum of \$37,500 lying as idle capital. And assuming that the men were paid one dollar per day, for 90 days, there was the sum of \$18,000 actually paid out as a direct tax upon the coal. A trade which can afford to be thus harassed and taxed, and still flourish, will readily pay at least a tithe of such expenses, to insure its safety and regularity, and may be considered a sure source of revenue to the Company.

As the locks and dams are successively finished, the coal trade and the agricultural business of the flourishing counties of Allegheny, Fayette, Washington and Greene, will be gradually extended; and when the lower section shall be finished, and the connection is made with the *National road* at Brownsville, a large augmentation of general trade as well as travel may reasonably be anticipated.

The Company's improvement will then unite the national road (at a favorable point for branching off) with the Pennsylvania Canal at Pittsburgh. Thus affording the rich district of country,

of which Brownsville is the centre, an easy and regular channel to an eastern market. The change from an uncertain and precarious navigation to one which can be relied upon, will be beneficial to every department of the trade.

The completion of the whole line, to Virginia, will bring into play the fine beds of iron ore and the vast forests of shipping timber, which abound on the head waters of the Monongahela; and, when extended, as it doubtless will be, from twenty to thirty miles into Virginia, that valuable district of country will pour out its treasures upon its bosom.

It is difficult to estimate the amount of trade that will eventually seek this channel. That it will undoubtedly be very great, every one must admit who carefully examines the question.

The Monongahela improvement will afford to the travelling public a convenient line of conveyance between the national road and the city of Pittsburgh. Merchants and others engaged in transporting between Baltimore and the Ohio River, will naturally follow this route as the quickest, cheapest and safest course. To all the south western counties of Pennsylvania, and some of the north western counties of Virginia, its early completion is of the first importance.

This navigation was early regarded with a favorable eye by the Canal Commissioners of Pennsylvania, and has, in part, received the fostering care of the Commonwealth. Forming, as it will, the principal outlet for a large and flourishing agricultural and mineral basin, and acting as the link between that region and the improvements of Pennsylvania, it will continue to be viewed as a valuable adjunct to her great system.

Respectfully submitted.

W. MILNOR ROBERTS,

Chief Engineer.

ENGINEER'S OFFICE,
Pittsburgh, December 24th, 1839.

ACCOUNT AND STATEMENT
OF
JOHN D. DAVIS, TREASURER,

Dated Dec. 31st, 1839.

MONONGAHELA NAVIGATION CO.

In account with JOHN D. DAVIS, TREAS'R.

1837.

	DR.
March 7, To cash paid A. Snyder for profiles Monon-	
gahela river, - - - - -	\$20 00
Sept. 9, To cash paid John Jones for printing, -	4 50
“ 16, Do. refunded W. Wade, am't paid by him	
for drawings Monongahela river, - -	111 25
Sept. 28, To cash paid James Clarke, President, -	326 68

1838.

March 6, Do. Ramsey & Co. for printing, - -	5 00
April 6, Do. T. M. Howe, Treas'r Board Trade,	
for office rent in 1837, - - - - -	50 00
April 6, To cash paid W. B. Scaife & Co. for tin case, -	3 00
April 6, Do. B. Patton, Jr. Secretary, for services, -	50 00
Aug. 3, Do. Cephas Gregg for expenses incurred	
for boat and outfit for surveyors, - -	230 00
Aug. 10, To cash paid W. Milnor Roberts, Engineer,	
on account, - - - - -	500 00
Aug. 10, To cash paid R. M. Riddle for printing, - -	6 00
Sept. 4, Do. W. Milnor Roberts, Eng'r, on acc't, -	500 00
“ 14, Do. W. Savory for engraving seal, - -	10 00
“ 29, Do. T. M. Howe, Tr. B. Trade, on acc't, -	50 00
Oct. 24, Do. Jas. Galbraith for services as attend-	
ant for Board of Managers, - - -	20 00
Oct. 24, To cash pd. W. Milnor Roberts, Eng. on acct. -	1000 00
“ 24, Do. Jas. Clarke, President, on account, -	200 00
Nov. 21, Do. James Grayson for printing, - -	4 75
Dec. 10, Do. W. M. Roberts, bal. Eng. expenses, -	71 16
“ 10, Do. do. on account salary, -	1250 00
“ 11, Do. James Clarke, President, - - -	200 00

Amount carried over, \$4612 34

1838.	Amount brought forward, - - -	\$4,612 34
Dec. 17, To cash paid John D. Davis, Treasurer,	300 00	
" 17, Do. B. Patton, Jr. Secretary, - - -	200 00	
" 17, Do. T. M. Howe, Treas. Board Trade, in full for office rent, - - - - -	50 00	
Dec. 17, To cash pd. W. M. Roberts in full for his services unto actual commencement of survey,—(See resolution Board Man- agers, Dec. 15, 1838,) - - - - -	500 00	
Dec. 22, To cash pd. N. M'Dowell, Assistant Eng.	180 00	
1839.		
March 23, To cash paid Craig & Grant for printing in Gazette, and other papers, - - -	74 00	
April 23, To cash pd. W. M. Roberts, Eng. on acct.	700 00	
" " Do. N. M'Dowell, Assist. Engineer,	400 00	
" " Do. J. K. & J. B. Morehead, con- tractors, Lock A, - - - - -	825 00	
April 23, To cash pd. Daniel G. Wearts, office rent,	30 00	
" " Do. Cephas Gregg, balance his acct.	35 36	
" 29, Do. R. M. Riddle for printing, -	5 00	
May 17, Do. J. K. & J. B. Morehead, con- tractors, Lock A, - - - - -	2,985 00	
June 12, To cash pd. Coreys & Adams, cont. Lk. B,	684 00	
" 18, Do. W. Hartupee for iron wk. for Lks.	291 10	
July 8, Do. Johnston & Stock. for station'y,	47 00	
" 10, Do. J. K. & J. B. Morehead, con- tractors, Lock A, - - - - -	2,060 00	
July 12, To cash pd. N. Harris for cement for Lks.	600 00	
" 29, Do. James Clarke, Pres't, on account,	200 00	
" " Do. Refunded Wm. Eichbaum expen- ses incurred by Board of Managers in visiting Lock and Dam B, - - -	10 00	
July 29, To cash paid J. K. & J. B. Morehead, contractors, Lock A, - - - - -	1,107 55	
July 30, To cash pd. W. M. Roberts, Eng. on acct.	500 00	
Aug. 1, Do. Coreys & Adams, contr. Lock B,	586 50	
" 1, Do. Jas. Galbraith for services as at- tendant of Board of Managers, -	15 00	
Aug. 1, To cash paid R. M. Riddle for printing,	6 10	
" 7, Do. N. M'Dowell, Assist. Engineer,	493 87	
" 24, Do. N. Harris for cement furnished for both Locks, - - - - -	490 00	
Aug. 24, To cash pd. J. K. & J. B. Morehead, con- tractors, Lock A, - - - - -	<u>1,274 49</u>	
	Amount carried over,	\$19,262 31

1839.	Amount brought forward,	\$19,262 31
Aug. 24, To cash paid Wm. Hartupee for iron work for Locks, - - - - -	306 51	
Aug. 26, To cash pd. Coreys & Adams, cont. Lk. B, - - - - -	763 00	
“ 29, Do. W. T. M'Clurg & Co. - - - - -	6 00	
Sept. 12, Do. Thomas Phillips for printing, - - - - -	2 50	
Oct. 2, Do. Coreys & Adams, contr. Lock B, - - - - -	1,435 65	
“ 2, Do. J. K. & J. B. Morehead, contractors, Lock A, - - - - -	1,110 95	
Oct. 2, To cash paid N. M'Dowell, Assist. Eng. - - - - -	300 00	
“ 2, Do. May & Hannas for provisions furn. - - - - -	91 00	
“ 2, Do. J. Galbraith for serv. as attendant, - - - - -	15 00	
“ 14, Do. W. B. Row for printiug, - - - - -	2 00	
Nov. 16, Do. John D. Davis for sundry expenses, - - - - -	35 77	
“ “ Do. N. Harris for amount for Locks, - - - - -	535 00	
“ “ Do. A. M. Hartupee for Iron work for both Locks, - - - - -	400 76	
Nov. 16, To cash pd. R. M. Riddle for printing, - - - - -	6 50	
“ “ Do. J. K. & J. B. Morehead, contractors, Lock A, - - - - -	1,500 00	
Nov. 28, To cash paid John D. Davis for services as Treasurer, - - - - -	500 00	
Nov. 28, To cash pd. J. K. & J. B. Morehead, contractors, Lock A, - - - - -	1,290 64	
Nov. 28, To cash pd. Coreys & Adams, cont. Lk. B, - - - - -	2,000 00	
“ “ Do. do. do. do.	1,747 50	
Dec. 4, To cash pd. B. Patton, Jr. for serv. as Sec. - - - - -	100 00	
“ 5, Do. B. P. Hartshorn, Treas. Board of Trade, for office rent, - - - - -	125 00	
Dec. 26, To cash paid W. M. Roberts, Eng. in full for his salary to July 19th, 1840, - - - - -	1,150 00	
Dec. 26, To cash paid W. M. Roberts for drawing paper, - - - - -	7 50	
Dec. 26, To cash paid Jas. Clarke, Pres't, on acc't, - - - - -	150 00	
“ “ Do. Coreys & Adams, contr. Lock B, - - - - -	1,117 75	
“ “ Do. A. M. Hartupee for Iron work for Locks, - - - - -	41 28	
Dec. 26, To cash paid J. K. & J. B. Morehead, contractors, Lock A, - - - - -	1,834 09	
Dec. 26, To cash paid James Galbraith for services as attendant, - - - - -	15 00	
Dec. 26, To cash paid N. M'Dowell, Assistant Engineer, in full, - - - - -	438 50	
Balance in Treasury, - - - - -	631 79	
	\$36,922 00	

CREDITS.

1839.

Dec. 31, By cash received for sale of Boat used by Engineers, - - - - -	\$115 00
Dec. 31, By cash received from Bank United States, 15,000 00	
" " Do. from commonwealth Pennsylvania, 7,500 00	
" " Do. from Bank of Brownsville, - - - 1,500 00	
" " Do. from individual Stockholders, - 12,807 00	
	<hr/>
	\$36,922 00

JOHN D. DAVIS, *Treasurer.*

PITTSBURGH, DEC. 31st, 1839.

STATEMENT OF THE

Number of Shares Subscribed, and the Payments made thereon,

BY THE

STOCKHOLDERS OF THE MONONGAHELA NAVIGATION COMPANY.

December 31st, 1839.

STOCKHOLDERS.	NUMBER OF SHARES SUBSCRIBED.	AMOUNT OF STOCK.	AMOUNT OF INSTALMENTS.		
			AMOUNT CALLED FOR.	AMOUNT PAID.	AMOUNT DUE.
Commonwealth of Pennsylvania, - - -	500	25,000 00	7,500 00	7,500 00	.....
Bank United States of Pennsylvania, - - -	1,000	50,000 00	15,000 00	15,000 00	.....
Monongahela Bank of Brownsville, - - -	100	5,000 00	1,500 00	1,500 00	.....
Individuals in Allegheny County, - - -	946	47,300 00	14,190 00	8,028 00	6,162 00
Ditto ' Fayette do. - - -	509	25,450 00	7,635 00	3,805 00	3,830 00
Ditto ' Washington do. - - -	20	1,000 00	300 00	155 00	145 00
Ditto ' Indiana do. - - -	10	500 00	250 00	250 00	.....
Ditto ' other places, - - -	66	3,300 00	990 00	69 00	921 00
W. Milnor Roberts, - - -	10	500 00	500 00	500 00	.....
Total, - - -	3,161	\$158,050 00	\$47,865 00	\$36,807 00	\$11,058 00

STATEMENT OF EXPENDITURES,

MADE BY THE MONONGAHELA NAVIGATION COMPANY,

Up to December 31st, 1839.

DESCRIPTION OF EXPENDITURES.	Expenditures in 1838.			Expenditures in 1839.			Total amount expended.
	Expenses prior to commencement of Surveys.	Preliminary Survey ^{s.}	Miscellaneous.	Construction.	Engineer Department.	Miscellaneous.	
Compensation of President, - - -	\$326 68		\$100 00	.....	.....	.....	\$1,076 68
Ditto of Secretary, - - -	50 00		200 00	.....	.....	c 100 00	350 00
Ditto of Treasurer, - - -	.....		300 00	.....	.....	500 00	890 00
Office Rent, Fuel and Attendant, - - -	50 00		150 00	.....	.....	170 00	370 00
Printing, Stationary, &c. - - -	9 50	2,770 72	20 75	.....	.....	150 60	180 85
b 500 00				3,810 00	.....	.....	7,080 72
Compensation of Engineer, - - -	\$1,051 44		936 44	.....	172 37	.....	1,108 81
Other Exp. of Eng. Dept. \$1,051 44							
Deduct for Boat Sold, 115 00							
Pd. Contract's. on Lock & Dam No. 1. - - -	.....		13,987 72	.....	.....	.....	13,987 72
Ditto " Lock & Dam No. 2. - - -	.....		8,334 40	.....	.....	.....	8,334 40
Iron Work for both works, - - -	.....		1,045 65	.....	.....	.....	1,045 65
Water Line for do. - - -	.....		1,625 00	.....	.....	.....	1,625 00
Contingencies, - - -	.....		.....	.....	.....	81 13	81 13
Copies of Drawings, - - -	134 25	.....	.....	.....	.....	.....	134 25
Amount, - - -	\$1,070 43	\$9,707 16	\$1,070 75	\$24,992 77	\$3,982 37	\$1,251 73	\$36,175 21
Balance remaining in the Treasury on the 1st of January, 1840, - - -	-	-	-	-	-	-	\$631 79.
a An unsettled account.	b Subscribed in Stock of the Company.	c Resigned in July, 1839.					

Pittsburgh, December 31st, 1839.

JOHN D. DAVIS, *Treasurer.*

MEMORIAL
OF THE
PRESIDENT AND BOARD OF MANAGERS
TO THE
LEGISLATURE OF PENNSYLVANIA.

To the Senate and House of Representatives of the Commonwealth of Pennsylvania:

The President and Managers of the Monongahela Navigation Company, beg leave to suggest sundry alterations, improvements and additions, which they pray your honorable bodies to make to the act, entitled, "an act to authorize the Governor to incorporate a Company to make a lock navigation in the river Monongahela," passed the 31st day of March, 1836.

Your memorialists pray that a remedial provision may be enacted to cure any defects in the organization and early operations of the Company, under the said act of incorporation. This provision is asked for chiefly on account of the Commissioners having omitted, in many instances, to demand and receive the five dollars, required by the act to be paid on each share at the time of subscribing.

The style of the Company, under the act of incorporation, is "The President, Managers and *Company* of the Monongahela Navigation *Company*"—a title so awkward and so unnecessarily verbose, that it could only have been adopted through inadvertence. It is, therefore, respectfully asked that it may be changed to "The Monongahela Navigation Company."

There is some ambiguity as to the meaning of the proviso to the 4th section of the act, which limits the number of votes, to which any one stockholder can be entitled, with any number of shares to *ten*. It is believed that if the number twenty were substituted, it would convey the true meaning of the Legislature, and be altogether proper.

It is a matter of vital importance, and essential to secure the full benefit and utility of the contemplated improvement to the Company, to the trade, and to the country at large, that the Company should be authorized to increase the elevation of the dams, to

any height not exceeding eight feet, from pool to pool, below Brownsville, and ten feet above that point. Your memorialists pray that authority may be granted for this purpose. It is shown by the report of the Engineer, which is hereto annexed, that the whole improvement will, in that event, cost less—be less liable to injury or destruction—more permanent—cost less for repairs—require fewer lock keepers and less superintendence—cause less detention to the trade—create a better navigation and more valuable water powers—and be attended with no additional damage to private property. The same section, which limits the height of the dams to $4\frac{1}{2}$ feet, prescribes the mode of assessing damages. It is suggested whether, in selecting umpires or assessors for this purpose, the most effectual mode of procuring such as would be truly “disinterested,” would not be, to provide for their appointment by the courts, and to require them to be selected and summoned from some adjoining county, through which no portion of the contemplated improvement will pass. Experience has shown that, if selected from amongst the immediate neighbors of the claimants, they are too apt to indulge their natural feelings of sympathy at the expense of injustice to the Company. The same section compels the Company, before entering upon any lands, to give security for the payment of damages. Troublesome or avaricious men may render this provision, to say the least, very vexatious to the Company, their officers and contractors. It may also be the means of protracting the work, and of increasing its cost. For these, and other obvious reasons, your memorialists pray that this provision may be repealed.

The mode, prescribed in the *tenth* section of the act, for charging toll, is considered quite objectionable. On the public improvements, belonging to the Commonwealth, and on almost all the rail-roads, canals, and artificial slack-water in the United States, toll is charged *by the mile*. But the Schuylkill Navigation Company, which is made to furnish the standard for this Company, are required to charge toll *by the lock*, according to the number of feet lift; and they are permitted to exact one rate above, and another below, the town of Reading. Which of these two rates shall furnish the criterion? There are striking points of dissimilarity between the two rivers, which render it inexpedient to use the lock, as a measure for charging toll, on the Monongahela, while the same measure is proper enough on the Schuylkill. The latter stream falls 610 feet in 110 miles, or more than 5 feet 6 inches to the mile; while the former has a fall of only 75 feet in 89 miles, or about 10 inches to the mile. Hence the same amount of tolls, for which a vessel could navigate, on the Monongahela, a distance of 89 miles, would only

carry it $13\frac{1}{2}$ miles along the Schuylkill. In other words, the Schuylkill Company can charge as much toll for one mile of navigation, as this Company can charge for $6\frac{1}{2}$ miles. Your memorialists pray that a provision, which subjects this Company to such obvious injustice and inequality, may be amended. The 7 *per cent.* dividends to which this Company is limited by the same section, are disproportioned to the risk incurred by the stockholders in their investment. To encourage the enterprise, and to indemnify the stockholders for advances made years before they can have any return, as well as to cover the risk of never obtaining any adequate interest on their money, a limit of less than 12 *per cent.* should not be imposed, in case the trade will warrant it. The Schuylkill Navigation Company, which is made the exemplar of this Company, is not, it is believed, restrained from dividing as much as 15 *per cent.* and consequently their stock is high in the market.

The penalties prescribed in the *eleventh* section are too light on the commandants of boats, and too heavy on the Company. In making no provision for accidents and circumstances beyond the control of the Company or their agents, it would be unjust in its operation. The Company should not be liable to a fine, unless the trade be detained through malice or culpable negligence.

The *fifteenth* section deprives the Company of the right of setting apart any portion of their profits as a contingent fund. This is a privilege essential to all great works liable to injury or destruction; and your memorialists pray that it may be extended to this Company.

The *sixteenth* section contains a provision, in relation to private dams, the effect of which is to destroy the unity of an important public improvement, and to subject it to the trammels and commingling of private interests. This provision, if unrepealed, will inevitably produce the most serious embarrassment, interfere with a judicious plan of improvement, and enhance, unnecessarily, the cost of the work. Your memorialists therefore pray that this section may be repealed, and that the owners of private dams may be placed upon the same footing with the owners of other kinds of property liable to be injured by the works of the Company, whose true interests will always restrain it from doing wanton injury to the property of individuals.

The right, reserved to the Commonwealth, in the *eighteenth* section, to buy out the Company at the expiration of 25 years, is proper enough. But the terms are unjust, inasmuch as the Company are bound to incur all the risk, trouble, and expense of the work, and, if, in the end, it should prove profitable, may

be deprived of it, and only get *6 per cent.* on their investment. This section is, moreover, inconsistent with some of the provisions contained in the tenth section. Your memorialists therefore pray that it may be altered, so as to make it obligatory on the Commonwealth, in case of resumption, to pay the capital and allow the Company to retain the dividends, which shall have been made, together with any contingent fund, which shall have accumulated, in case the dividends shall have exceeded *6 per cent.*; but, in case they shall have fallen short of that amount, to pay the capital with *6 per cent.* on the same from the period of its investment, and allow the Company to retain the contingent fund.

The limitation of six months, prescribed in the *nineteenth* section, for the commencement of suits and actions, should be extended to at least one year, in order to afford ample time for the detection of offenders, whose guilt often remains long concealed.

The provisions contained in the *twentieth* section of the act, your memorialists pray may be enlarged, so as to authorize the Company to purchase such lands, in quantity and location, as may be necessary to the full use and enjoyment of the water rights secured to them by the act.

The limitation of three years, prescribed in the proviso to the *twenty-first* section, your memorialists pray, may be extended. As the work approaches completion to the Virginia state line, it will, it is conceived, be ample time to enter into the stipulation, therein prescribed, with that state.

JAMES CLARKE,
President of the Mon. Nav. Co.

Pittsburgh, December 7th, 1838.

AN ACT

To authorize the Governor to incorporate a Company to make a Lock Navigation on the River Monongahela.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same,* That Thomas H. Baird, Aaron Kerr, Ephraim L. Blain, William Briant, Shasbazzer Bently, Andrew Gregg, John Bowers, William Vankirk, Samuel Beatty, William Hopkins, and James Gorden of Washington county, George Dawson, Benedict Kimber, George Hogg, James L. Bowman, Israel Miller, David Gilmore, E. P. Olyphant, Jeremiah Davison, Thomas Wilson, Tazwell P. Martin, George Cramer, Yates S. Conwell, Thomas Beatty, Aaron Bucher, John Harshe, Andrew Stewart, Samuel Evans, Isaac Crow, George Vance, James C. Etington, Robert Brown, James C. Ramsey, David B. Rhoads, William Everhart, Westley Frast, and Samuel J. Krepps of Fayette county, Isaac Hill, Alexander Davidson, Thomas Hughes, Lawrence L. Minor, Robert Maple, Daniel Boughner, Thomas Horner, sen., Benjamin F. Black, Joseph Baily, Ralph Drake, Samuel M'Quire, Aaron Gregg, Jos. Reinhart, Jno. Lindsay, Wm. Litzanberg, Jonathan Garrard, and James Mapel of Greene county, Jos. Taylor, Thos. Reynolds, James M'Clure, Gilbert Stevens, Samuel Church, James W. Burbridge, Fanniley Muse, Samuel Walker, Christopher Magee, Neville B. Craig, James Ross, jr. Samuel Stackhouse, Thomas Bikewell, James Anderson, John Irwin, Charles S Bradford, William A. Penniman, Henry Smys τ , William Larimer, Valentine Fehle, George Bell, Robert H. Peebles, Thomas M. Giffin, are hereby appointed commissioners to do and perform the several things hereinafter mentioned, that is to say: they, or any five of them, shall, on or before the first Monday of May next, procure a sufficient number of hooks, one or more of which shall be opened at convenient places in the city of Pittsburgh, at Elizabethtown and M'Keesport in Allegheny county, at Williamsport and Fredericktown in the county of Washington, at Cookstown, Brownsville and Geneva in the county of Fayette, and at Greensburgh and Jefferson in the county of Greene, and in each of them enter as follows: "We whose names are hereunto subscribed, do promise to pay to the President and Managers of the Monongahela Navigation Company, the sum of fifty dollars for every share of stock set opposite to our names respectively, in such manner,

and in such proportions, and at such times, as shall be determined by the President and Managers of said Company, in pursuance of an act of the General Assembly of this Commonwealth, entitled 'An act to authorize the Governor to incorporate a Company to make a lock navigation on the river Monongahela.' Witness our hands, this day of in the year of our Lord, one thousand eight hundred and ;" and shall thereupon give notice, in one or more newspapers printed in the county of Fayette, and one or more newspapers printed in the borough of Washington, one or more newspapers printed in Greene county, and one or more newspapers printed in the city of Pittsburgh, for one calendar month at least, of the times and places when and where the said books shall be kept open to receive subscriptions for the stock of the said Company, at which times and places, at least two of the commissioners shall attend, and permit all persons of lawful age who shall offer to subscribe in the said books, in their own name, or in the name of any other person who shall authorize the same, to subscribe for any number of shares in the said stock, and the said books shall be kept open respectively for the purpose aforesaid, at least six hours in every juridical day, for the space of ten days, at the following named places, to wit: the city of Pittsburgh, Elizabethtown in the county of Allegheny, at Williamsport in the county of Washington, at Brownsville, Cookstown and Geneva in the county of Fayette, and at Greensburgh and Jefferson in the county of Greene, and if at the expiration of ten days, it shall be ascertained that there is not six thousand shares subscribed in the books aforesaid, the said commissioners may adjourn from time to time, and transfer the books elsewhere, until the whole number of six thousand shares aforesaid, shall have been subscribed; of which adjournment and transfer of the books, the commissioners aforesaid shall give public notice, as the occasion may require, and when the whole number of shares shall be subscribed, then the books shall be closed: *Provided always*, That every person offering to subscribe in the said books, in his own or any other name, shall previously pay to the attending commissioners the sum of five dollars for every share subscribed, out of which shall be defrayed the expenses attending the taking of such subscriptions, and other incidental expenses, and the remainder shall be paid to the treasurer of the corporation, as soon as the same shall be organized and the officers chosen, as hereinafter mentioned.

SECTION 2. That when two thousand shares or more of the said capital stock shall be subscribed, the commissioners, or a majority of them, shall certify to the Governor, under their hands and seals, the names of the subscribers, and the number of shares

subscribed by each, whereupon the Governor shall, by letters patent, under his hand and the seal of the commonwealth, create and erect the subscribers, and if the subscription be not full at the time, then all those who shall thereafter subscribe to the number of shares as aforesaid, into one body politic and corporate, in deed and in law, by the name, style and title of "The President, Managers and Company of the Monongahela Navigation Company," and by the same name the subscribers shall have perpetual succession, and all the privileges and franchises incident to a corporation, and shall be capable of taking and holding their capital stock, and the increase and profits thereof, of enlarging the same from time to time by new subscriptions, in such manner and form as they shall think proper, if such enlargement shall be found necessary to fulfil the intention of this act, of purchasing, taking and holding, to them, their successors and assigns, in fee simple, or for any less estate, all such lands, tenements, hereditaments and estate, real and personal, as shall be necessary to them in the prosecution of their works, of suing and being sued, and of doing all and every other matter and thing which a corporation or body politic may lawfully do.

SECTION 3. Samuel Walker, George Dawson, George Hogg, James L. Bowman, Israel Miller, Aaron Kerr, Neville B. Craig, Samuel Stackhouse, James Ross, junior, and William W. Irwin, or a majority of them, shall, as soon as conveniently may be after the said letters patent shall be obtained, give at least twenty days notice in all the public newspapers hereinbefore mentioned, of the time and place by them appointed for the subscribers to meet, in order to organize the said Company, who shall choose by a majority of votes, by ballot, to be given in person or proxy, duly authorized, one president and ten managers, a treasurer, secretary, and such other officers as shall be deemed necessary, which proxy shall have been obtained and bear date within three months previously to the election at which such proxy shall be presented; and the president and managers chosen as aforesaid, shall conduct the business of said Company until the first Monday of January next, and until like officers shall be chosen, and may make such by-laws, rules orders and regulations, as do not contravene the constitution and laws of the United States or of this state, that may be necessary for the well governing the affairs of the Company; and the said Company may demand and take such securities from their officers and agents, and in such sums as may be fixed by the by-laws, or by resolution of the board, for the faithful discharge of their respective duties.

SECTION 4. The stockholders shall meet on the first Monday of January in every year, at such place as may be fixed upon by

the by-laws, of which notice shall be given at least twenty days, by the secretary, in the newspapers before mentioned, and choose by a majority of votes present, such officers for the ensuing year as mentioned in the third section of this act, who shall continue in office for one year, and until others are chosen, and at such other times as they may be summoned by the Managers, in such manner and form as shall be prescribed by the by-laws, at which annual or special meeting, they shall have full power and authority to make, alter or repeal such by-laws, by a majority of votes, in manner aforesaid, and to do and perform any other corporate act; and every person holding ten, or any less number of shares of said stock, shall be entitled to one vote for every share so held, at any election for officers of said Company, or other meeting of stockholders, and one vote for every additional ten shares: *Provided*, That no number of shares shall entitle the holder thereof to more than ten votes: *And provided*, That the omission of the stockholders to meet and elect as aforesaid, shall work no forfeiture, but they may be afterwards called together for that purpose by the Managers.

SECTION 5. The said President and Managers shall meet at such times and places as shall be found most convenient for the transacting of their business, and when met, five shall be a quorum, who, in the absence of the President, may choose a chairman, and shall keep minutes of their transactions, to be fairly entered in a book, and a quorum being formed, they shall have full power and authority to appoint all such surveyors, engineers, superintendents, and other artists and officers, as they shall deem necessary to carry on the intended work, to fix their salaries and wages, to ascertain the times, manner and proportions in which the said stockholders shall pay the moneys due on their respective shares, to draw orders on the treasurer: *Provided*, That such drafts or orders be signed by the President, or in his absence by a majority of the quorum present, and generally to do all such other acts, matters and things, as by this act, and the by-laws and regulations of the Company, they shall be authorized to do.

SECTION 6. The President and Managers first chosen shall procure certificates or evidence of stock for all the shares of the said Company respectively, and shall deliver one such certificate, signed by the President, and countersigned by the treasurer, and sealed with the common seal of the corporation, to each person, for every share by him, her or them, subscribed and held, he, she or they, paying five dollars for each share, as aforesaid, which certificate or evidence of stock shall be transferable at pleasure, in person or by attorney, duly authorized, in the presence of the President or treasurer, to be entered in a book to be kept for that

purpose, subject however to all payments due or to become due thereon; and the assignee holding any certificate entered as aforesaid, shall be a member of the said corporation, and entitled to one share of the capital stock, and of all the estates and emoluments of the Company incident to one share, and to vote, as aforesaid, at the meetings thereof, and be subject to all the penalties and forfeitures, and of being sued for all the balance and penalty due or to become due on each share, as the original subscribers would have been.

SECTION 7. After thirty days notice in the public papers aforesaid, of the time and place appointed for the payment of any proportion or instalment of the said capital stock, in order to carry on the work, any stockholder having neglected or refused to pay such proportion or instalment, at the place appointed, for the space of thirty days after the time so appointed, every such stockholder, or his assignee, shall, in addition to such instalment so called for, pay at the rate of two per centum per month for the delay of such payment; and if the same and additional penalties shall remain unpaid for such a space of time as the accumulated penalty shall become equal to the sums before paid in part and on account of such shares, the same shall be forfeited to the said Company, and may be sold to any person or persons willing to purchase, for such price as can be obtained for the same; or in default of payment by any stockholder of any such instalment as aforesaid, the said President and Managers may, at their election, cause suit to be brought before a Justice of the peace, or in any Court having competent jurisdiction, for the recovery of the same, together with the penalties aforesaid: *Provided*, That no stockholders, whether original subscriber or assignee, shall be entitled to a vote at any election, or at any general or special meeting of said Company, on whose share or shares any instalments or arrearages may be due and payable, more than thirty days previously to said election or meeting.

SECTION 8. It shall and may be lawful for the said President, Managers and Company, their superintendents, surveyors, engineers, artists and workmen, to enter upon the said river Monongahela, and upon the lands on either side, and to use the rocks, stones, gravel or earth, which may be found thereon, in the construction of their works, first giving notice to the owner or occupiers of the land, and to form and make, erect and set up any dams, locks, or any other device whatsoever, which they shall think most fit and convenient to make a complete slack-water navigation between the points herein mentioned, to wit—the city of Pittsburgh and the Virginia state line; and that the dams which they shall so construct for the purpose of slack-water navi-

gation, shall not exceed in height four feet six inches; and that the locks for the purposes of passing steamboats, barges and other craft, up and down said river, shall be of sufficient width and length to admit a safe and easy passage for steamboats, barges, and other craft, up as well as down said river. They shall make amends for any damage that may be done on said lands, and pay the owner or owners for the materials taken away, as well as for the land occupied in the construction of the said dams and water works: *Provided*, If the parties cannot agree, the said damages are to be valued by five disinterested freeholders, appointed by the consent of the parties; or if they cannot agree, by any disinterested Justice of the peace of the proper county; and the report made by the freeholders so agreed upon, or appointed as aforesaid, or a majority thereof, shall be filed in the office of the Prothonotary of the county in which the land lies, and shall be regularly entered of record, which report being confirmed by the Court, judgment shall be entered thereon, and execution may issue in case of non-payment for the sum awarded, with reasonable costs, to be assessed by the Court; and it shall be the duty of the five freeholders aforesaid, in assessing the damages, to take into consideration the advantages derived to the owner or owners of the premises, from the said improvements hereby authorized: *Provided*, That either party may appeal to the Court within thirty days after such report may have been filed in the Prothonotary's office of the proper county, in the same manner as appeals are allowed in cases under the act entitled, "An act regulating arbitrations," passed the twentieth day of March, Anno Domini, one thousand eight hundred and ten: *Provided further*, That before entering upon or occupying any lands, said Company shall give security, to be approved by the Court of Common Pleas of the county in which the land lies, to pay the amount of damages which shall be finally adjudged against them for such occupation or entry upon such land.

SECTION 9. The said President, Managers and Company, shall have the privilege, and be entitled to use the water-power from the said river to propel such machinery as they may think proper to erect on the land which they may previously have purchased from the owner or owners; or may sell, in fee, lease, or rent, for one or more years, the said water-power, to any person or persons, on such terms as shall be most advantageous to the corporation: *Provided*, it may be so done that it shall not injure, impede, or interrupt the navigation, and that the moneys arising from such sale of the water-power be applied to the use and benefit of the said corporation.

SECTION 10. So soon as twenty miles of the slack-water navigation shall be completed, the said President and Managers shall give notice thereof to the Governor, who shall thereupon nominate and appoint three disinterested persons to view and examine the same, and report to him in writing, under oath or affirmation, whether the said works have been so far executed in a workman-like manner, according to the true intent and meaning of this act; and if at any time their report shall be in the affirmative, then the Governor shall, by license, under his hand and the seal of this Commonwealth, permit the said President, Managers and Company, or such person as they shall from time to time appoint, to collect the tolls, which shall not exceed the following rates, to wit: That the President and Managers shall be entitled to take and receive the same rate of toll per ton, or otherwise, at their discretion, as the Schuylkill Navigation Company are entitled to receive under their act of incorporation: *Provided further*, That if at the expiration of two years after the said work shall have been completed, the tolls, together with the interest of the surplus of any money arising from the sales of water-power, or the rents and profits thereof, should enable the Company, after paying all repairs and other necessary expenses, to divide more than seven per cent. per annum on the capital stock expended, the tolls shall be so reduced that the dividends shall not exceed seven per cent. and shall so continue for five years; and if at the expiration of that time they shall exceed nine per cent. they shall be so reduced as not to exceed nine per cent. and shall thereafter be so regulated, from time to time, as not to exceed nine per cent. per annum; and if at any time after the expiration of one year from the completion of the said work, the net profits aforesaid shall not amount to seven per cent. upon the money expended, it shall be lawful to increase the said tolls so as to divide seven per cent.: *Provided also*, That if it should be found at any time after the said Company goes into operation, that the profits arising from the sale, rent or lease of the said water-power, should amount to seven per centum per annum on the capital stock actually expended, then it shall not be lawful to demand or receive any toll at any of the locks aforesaid, but to permit all persons going up or down said river in boats, barges, or other vessels, to pass through said locks free of any toll, or other charges whatsoever.

SECTION 11. It shall be the duty of the commandant of any boat, barge, or other vessel navigating the said river, when he shall arrive within one-fourth of a mile from any lock so erected, under the penalty of two dollars, to blow a horn or trumpet, or

ring a bell; whereupon the keepers of such lock shall attend for the purpose of opening such gate or sluice, to let the said boat, barge, or other vessel, pass without unnecessary delay, and in safety; and if any boat, barge, or other craft, shall be prevented from passing up or down any of the said locks or sluices, by reason of the lock not being raised, for more than thirty minutes, the President, Managers and Company shall, upon conviction thereof, forfeit and pay to the person so hindered, the sum of one dollar for every thirty minutes beyond the said time that he shall be so prevented, and in the same proportions for any longer or shorter time, and civil process in the proper county, and next to the place where the offence shall have been committed, shall be served by the owner or owners thus aggrieved, upon the aforesaid President, Managers and Company.

SECTION 12. If the President, Managers and Company, shall neglect or refuse to keep in good order and repair, any dam, lock, or sluice, of their own construction, or shall neglect to remove any obstacle which may occur therein, so that boats, barges, rafts, or vessels, cannot at all times safely navigate said river, when the same is not prevented by ice, or other unavoidable cause, they shall for every such offence pay the sum of fifty dollars, to be recovered in the same manner as debts of equal amount are or shall be by law recoverable—one-half to the use of the informer, and the other half to the use of the poor of the township or county where the neglect or refusal may occur.

SECTION 13. If any person or persons shall wilfully and knowingly do any act or thing whereby the navigation shall be impeded, or any dam, lock, gate or engine, machine or device, therein belonging, or any machinery or property of the Company shall be injured or damaged, he, she, or they so offending, shall forfeit and pay to the said Company double the damages by them sustained, together with costs, to be recovered by action of debt before any Justice of the peace, or in any Court of competent jurisdiction.

SECTION 14. The President and Managers of the said Company shall keep fair and just accounts of all moneys received by them from the said Commissioners, and from the subscribers to the undertaking, on account of the several subscriptions, of all penalties for delay in the payment thereof, and the amount of profits on the shares which may be forfeited as aforesaid; and also, of all moneys by them expended in the prosecution of the said works, and shall in every year submit such accounts to the stockholders at their annual meetings; and when the aggregate amount of such receipts and expenditures shall be ascertained, and upon such liquidation, or when the capital stock shall be

nearly expended, it shall be found that the said capital stock will be insufficient to complete the said navigation, according to the true intent and meaning of this act, it shall and may be lawful for the said President, Managers and Company, at a stated or special meeting, to be convened for the purpose, to increase the number of shares to such extent as shall be deemed sufficient to accomplish the work, and to receive and demand the moneys for shares so subscribed, in like manner and under like penalties as are herein before provided, or as shall be provided by their by-laws.

SECTION 15. The President, Managers and Company, shall keep a just and true account of all the moneys received by their several and respective collectors of tolls at the several and respective locks, and all moneys received for the rent or hire of the water-power, and all other emoluments, and shall make and declare a dividend of the clear profits and income thereof, among all the stockholders, in proportion to the stock held by each, all contingent costs and charges being first deducted; and shall on the first Monday in January in each and every year, publish the dividend made of their clear profits, and the time when and the place where the same will be paid to the stockholders, not exceeding twenty days thereafter, and shall cause the same to be paid accordingly; and shall, on or before the first Monday of February in every year after the incorporation of the Company, lay an abstract of the accounts of their receipts and disbursements before the Legislature, under oath or affirmation of the President of the Company; and the said Company shall pay annually into the Treasury of the Commonwealth, a tax of eight per centum per annum on all dividends which may exceed six per centum on the capital stock actually paid in.

SECTION 16. Nothing herein contained shall at any time injure, destroy, or in any way impair any right, privilege, or legal claim which may have been granted to individuals by any act or acts of Assembly heretofore passed, for the purpose of erecting mill-dams on said river; but such persons as have mill-dams thereon, are hereby enjoined to have them constructed or raised to the same height as is prescribed in the eighth section of this act, at their own proper costs and expense, and also to build and erect a suitable lock or locks, and guard-wall, and the same to be inspected and approved of by the said President and Managers, or a majority of them, and to maintain and keep the same in perfect order and repair, to receive the same tolls, and be subject to the same penalties and forfeitures, and be liable to have process served on him, her, or them, in the same manner as the President, Managers and Company, are subject to according to

the provisions of this act; but if the owner of such privilege shall, for six weeks after notice given by said President, Managers and Company, neglect or refuse to construct or repair his or her dam, and make his or her lock in the manner prescribed by the Company, then the said Managers and Company shall have power to erect such dam and lock, and receive the tolls in the same manner as is provided in the tenth section of this act.

SECTION 17. If the said President, Managers and Company, shall not proceed to carry on the said work within five years from the passage of this act, and shall not complete the navigation to the Virginia state line aforesaid, in seven years thereafter, according to the true intent and meaning hereof, then, and in either of those cases, all the rights, privileges, liberties and franchises hereby granted to said Company, shall revert to the Commonwealth. *And provided*, That in case of forfeiture by the Company, the owner or owners of any water-powers created by any dam erected by virtue of this act, shall be obliged to keep in perfect repair and good condition any dam or dams, lock or locks, connected with such water-power, under and subject to the same penalties as the Company originally were, and shall have the right to charge and receive the same tolls as the said Company had received; and in case the owner or owners of such water-power shall neglect or refuse to keep the said dam or dams, lock or locks, as aforesaid, in good order and repair, fit for the passage of boats, barges, and other vessels, as the case may be, the Legislature may resume all and singular, the rights, privileges, liberties and franchises granted by this act.

SECTION 18. It shall be lawful for the Commonwealth, at the end of twenty-five years from the completion of the work hereby authorized, to purchase the improvements made in pursuance of this act, by paying to the Company the original cost expended in the improvements, and the subsequent expenses, together with six per cent. interest thereon, deducting from the sum of principal and interest aforesaid, the dividend before declared by the said Company on the capital stock, and on the payment thereof by the Commonwealth to the said Company, in such manner and form as shall be agreed upon by the said Company, and by agents duly authorized by the Commonwealth, all and singular, the improvements aforesaid, with its appurtenances, water-rights and privileges, shall be vested in the Commonwealth, and the privileges and corporate rights hereby granted will thereupon cease and determine, excepting so far as the same may be necessary in the settlement of the concerns of said Company.

SECTION 19. No suit or action shall be brought or prosecuted by any person or persons, for penalties incurred under this act,

unless said suit or action shall be commenced within six months next after the offence shall have been committed, or the cause of action have accrued, and the defendant or defendants in such suit or action may plead the general issue, and give this act and the special matter in evidence, and that the same was done in pursuance and by authority of this act.

SECTION 20. The said Company shall not engage, directly or indirectly, in any banking, moneyed, commercial or manufacturing concern, or in the transportation or storage of any merchandise, lumber, coal, grain, flour, or other articles; nor shall they hold, erect, or own any other lands, buildings, wharves or docks, than such as are necessary and convenient for their business as a Navigation Company.

SECTION 21. That the said Company, hereby incorporated, be and they are hereby authorized and empowered to procure the right from the proper authorities of the state of Virginia, to extend the said improvements from the Pennsylvania state line, as far up the said river as the said Company may deem practicable: *Provided*, That the charter or grant which shall be obtained from the said state of Virginia, for the purpose aforesaid, shall stipulate that no higher or other tolls or charges shall be made or exacted on so much of the said improvements as shall be located within the said state, than are permitted to be charged, by the provisions of this act, on that portion of the said improvements which shall be located in the state of Pennsylvania; and in default of such stipulation, within three years from the passage of this act, the Legislature of this Commonwealth reserves the right to make such alterations and additions to the charter hereby authorized, as may be deemed just and expedient.

APPROVED—The thirty-first day of March, Anno Domini, one thousand eight hundred and thirty-six.

Extract from the 6th section of an act to repeal the State tax on Real and Personal Property, and for other purposes.—Approved the 18th day of February, 1836.

“To the Monongahela Navigation Company, fifty thousand dollars, if the same be incorporated at the opening of the books of subscription for the capital stock thereof, and the further sum of fifty thousand dollars, as soon as one hundred thousand dollars subscribed by other persons, or bodies corporate, shall have been bona fide expended in the construction of said work.”

RESOLUTION

Relating to the procuring and opening of Books for receiving subscriptions to the Stock of the Company for making a Lock navigation on the Monongahela river.

WHEREAS, in and by an act of the General Assembly of the Commonwealth of Pennsylvania, entitled, "An act to authorize the Governor to incorporate a Company to make a Lock navigation on the river of Monongahela," approved the thirty-first day of March, one thousand eight hundred and thirty-six, it is made the duty of the Commissioners therein named to procure and prepare Books for receiving subscriptions of Stock of said Company, on or before the first Monday of May, one thousand eight hundred and thirty-six;—And whereas, the period of time between the passage of said act and the said first Monday of May was not sufficient to enable the said Commissioners to perform the duty so enjoined upon them;—therefore,

Resolved, by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, That the said Commissioners be and they are hereby authorized to receive subscriptions to the Stock of said Company, in books which may have been opened at any time, in conformity with the directions contained in the said act; and all such subscriptions of stock shall be as valid, in all respects, as if the said books had been procured and prepared on or before the said first Monday in May.

APPROVED—The fourteenth day of June, Anno Domini, one thousand eight hundred and thirty-six.

A SUPPLEMENT

To an act entitled, "An act to authorize the Governor to incorporate a company to make a Lock Navigation on the River Monongahela."

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met, and it is hereby enacted by the authority of the same,* That any defect or irregularity in the proceedings of the commissioners appointed by the act, entitled, "An act to authorize the Governor to incorporate a Company to make a lock navigation on the river Monongahela," passed the thirty-first day of March, one thousand eight hundred and thirty-six, in taking subscription to and organizing the said Company, and any defect or irregularity in the proceedings of the Board of Managers of said Company, in organizing and conducting the affairs of the same, so far as the said defect or irregularity may have proceeded from the neglect or omission of the said commissioners and Board of Managers, fully to comply with the requisitions of the proviso to the first section of said act, shall be and the same are hereby remedied and supplied; and the acts and proceedings of the said commissioners and Board of Managers, which were in contravention of the said proviso shall be and are hereby declared valid and legal, as if the same had been fully complied with.

SECTION 2. The name, style and title of the said Company shall, from and after the passage of this act, be, the "Monongahela Navigation Company."

SECTION 3. At all elections held by the stockholders, every person holding ten or any less number of shares, shall be entitled to one vote for every share so held; and one vote for every additional ten shares. *Provided,* That no number of shares shall entitle the holder thereof to more than twenty votes. And so much of the proviso in the fourth section of the aforesaid act, as conflicts with this section shall be and is hereby repealed.

SECTION 4. The said Company shall be permitted to erect such dams, as may be necessary for the construction of the said navigation, below Brownsville, to a height not exceeding eight feet from pool to pool. In selecting persons to assess damages occasioned by the construction of said navigation, no person shall be chosen who is a resident of any county through which the said improvement shall pass. *Provided,* That all the locks be-

low the town of Elizabeth, in Allegheny county, on said river, be made one hundred and ninety feet long and fifty feet wide, and that all the locks below the town of Brownsville, shall be of like dimensions.

SECTION 5. When the said navigation or any portion thereof shall be completed, the President and Managers shall be entitled to receive such rates of toll per mile, at their discretion, as may be just and reasonable, subject, however, to the control and regulation of the Legislature, if at any time complaint should be made to the same. *Provided always*, That the net dividends on said stock shall not exceed twelve per cent. per annum, and the said Company shall not be compelled to permit any boat or craft, except such as shall be hereinafter provided for, to pass toll free, unless the dividends amount to twelve per cent. per annum.

SECTION 6. The penalty inflicted on said Company by the eleventh section of said act, for detention in passing the locks or sluices, shall not be imposed unless occasioned by malice or culpable negligence, on the part of the said Company, its officers or agents.

SECTION 7. The said Company shall be permitted to set apart, as a contingent fund for the purpose of defraying the expenses of extraordinary repairs, or other unforeseen expenditures to which said Company may become liable, the sum of twenty per cent. of their tolls, interest, rents or profits, annually, until the said contingent fund shall amount to fifty thousand dollars, but, in the annual abstract of its accounts laid before the Legislature, the amount of such contingent fund shall be fully set forth.

SECTION 8. In case the commonwealth should at any time purchase the improvement, made in pursuance of this act and the act to which this is a supplement, then the commonwealth shall pay to the Company such sum or sums of money, as, together with the net dividends, shall amount to the expense incurred in constructing said improvements and keeping it in repair, with eight per cent. per annum interest thereon.

SECTION 9. The limitation of six months for the commencement of action, as prescribed in the nineteenth section of the original act, is hereby extended to one year.

SECTION 10. The Monongahela Navigation Company shall have privilege to purchase and hold such lands as may be necessary to the full use and enjoyment of the water right secured to them by the original act.

SECTION 11. The time for obtaining a charter or grant from the state of Virginia, in relation to this improvement, is hereby extended to the thirty-first day of March, one thousand eight hundred and forty-two.

SECTION 12. The sixteenth section, together with such other portions of the act, to which this is a supplement, as are hereby altered and supplied, shall be and are from henceforth repealed.

SECTION 13. The Legislature reserves the right to alter, amend or annul the charter of said Company, at any time hereafter, in such manner, however, that no injustice shall be done to the corporators.

APPROVED—This twenty-fourth day of June, Anno Domini, eighteen hundred and thirty-nine.

To Messrs. THOS. BAKEWELL, WM. EICHBAUM and WILLIAM WADE,
Committee of Board of Managers of the Monongahela Navigation Co.

GENTLEMEN,—Agreeable to your request, I herewith send a statement of the number of arrivals and departures of Steamboats, &c. employed regularly in the Monongahela trade; in addition to which a number of steamboats have occasionally gone to Brownsville, &c. and a large number of flat boats, loaded with coal, have descended the river without stopping at this port.

With respect, I am yours, &c.

THOS. M'FADDEN, *Wharf Master.*

Pittsburgh, January 1st, 1840.

STEAMERS.

							Tons.	Voyages	
Liberty,	-	-	-	-	-	-	83	21	
Franklin,	-	-	-	-	-	-	34	65	
Pike,	-	-	-	-	-	-	35	34	
Shannon,	-	-	-	-	-	-	77	43	
Ploughman,	-	-	-	-	-	-	38	58	
Royal,	-	-	-	-	-	-	68	29	
Excel,	-	-	-	-	-	-	41	13	
Exact,	-	-	-	-	-	-	61	3	
Traveller,	Running constantly and employed in towing flats, rafts, &c. &c.								
Ranger,									
D. Crockett,									
686 Keels and flats loaded with produce,									9,482
1048 Flats loaded with coal, brick, &c. tonnage unknown.									
Total Tons,	-	-	-	-	-	-			23,678

the new Locks, commonly known as the "Gaines" and in the vicinity of the Conestoga was commenced in the year 1825, and completed in 1827. It extended from the South-eastern corner of the Conestoga to the Susquehanna, a distance of 17½ miles to the city of Lancaster, and concluded at the head of the Lancaster River, a distance of one mile from the city of Lancaster, and completed in 1830. The Conestoga Canal was opened to navigation on the 20th of April, 1830, the following are extracts:—

"The new Locks, commonly known as the "Gaines" and in the vicinity of the Conestoga was commenced in the year 1825, and completed in 1827. It extended from the South-eastern corner of the Conestoga to the Susquehanna, a distance of 17½ miles to the city of Lancaster, and completed in 1830. The Conestoga Canal was opened to navigation on the 20th of April, 1830, the following are extracts:—

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"The new Locks, commonly known as the "Gaines" and in the vicinity of the Conestoga was opened to navigation on the 20th of April, 1830, the following are extracts:—

therefore, at present, consists of 7 locks, and 7 dams, instead of 9 as heretofore. At dam No. 4 (formerly No. 5) a canal has been made one-fourth of a mile long, with a view to a convenient and safe location for the lock, and to the advantageous use of the very valuable water power accumulated by the increased elevation of the new dam. Lock and Dam No. 7 (formerly No. 9) are the only works which have not been rebuilt or permanently repaired upon the line. The dam, however, is in excellent condition, and the lock is in good order for Navigation; yet it should, and can, at a moderate expense, be altered and improved so as to render it more convenient and useful than at present, as will ensure its durability for some years longer, or until a new lock shall be constructed to supply its place, which may be done at any time without interrupting the Navigation, as a new set would probably be preferred. The towing path along the line has been improved, repaired, and bridged, where necessary, and the old dams have been thoroughly repaired, new sheeted, and gravelled.

It affords me pleasure, therefore, to be able to assure you that the entire navigation is now in excellent order for an early opening of business in the ensuing spring. The lockage on the Conestoga (originally 64 feet) will on the completion of the lock and dam now building to connect with the Susquehanna Canal be reduced to 58 feet, and as the smaller the amount of lockage the greater the facilities for transportation, the Lancaster and Susquehanna Slack Water Navigation, may with a water surface, (or boat channel) averaging two hundred and fifty feet in width, and a moderate amount of lockage, justly be considered one of the most capacious, as well as beautiful improvements in the country. Viewed therefore as a permanent navigable canal in connection with its extensive and valuable water power, located in the heart of one of the most populous, fertile and productive counties in the state, its shores must resound with the busy hum of commerce, and the improvement itself become a source of profit to its proprietors. The works now building to connect the Conestoga with the Susquehanna Canal, it is confidently expected, will be finished by the 1st of the ensuing September, when the city of Lancaster will be united by an uninterrupted canal boat navigation with the tide water, and as soon as the North Branch Canal shall be completed, a canal boat may be loaded at Lancaster, and by the way of the Susquehanna, North Branch, Chemung and Erie canals, be landed and unloaded on the shores of Lake Erie! With these important facts in view it cannot be doubted that the attention of our citizens will soon be directed to the importance of your improvement, and that they will not hesitate speedily to exert their energies in securing and retaining such rare advantages as are now offered to them (without exertion on their part) by its enterprising proprietors. I cannot close the report without remarking, that, in all probability the enterprising and public spirited citizens of Lancaster county, will, before many years elapse, find it greatly to their interest to extend the improvement of the Conestoga as far as Hinkletown, or perhaps Churchtown, embracing a distance of about forty miles through a country unsurpassed in the fertility of its soil, in the industry of its inhabitants, and its rich agricultural and health. This extension

will increase the trade and wealth of the whole country, already one of the most favored and fertile in the State. The public interest cannot long delay an accurate survey of this desirable extension of your work, which it is thought can with the experience of later years in similar improvements be constructed at less cost than has been encountered and overcome by the Lancaster and Susquehanna Slack Water Navigation Company.

All of which is respectfully submitted.

EDWARD F. GAY, Engineer.

At a meeting of the Board of Managers of "The Lancaster and Susquehanna Canal" on the 21st Feb., 1840.	At a meeting of the Board of Managers of "The Lancaster and Susquehanna Canal" on the 21st Feb., 1840.
1838, do do 12th, do March 31st.	1838, do do 12th, do March 31st.
1837, do do 20th, do May 16th.	1837, do do 20th, do May 16th.
1836, do do 25th, do April 27th.	1836, do do 25th, do April 27th.
1835, do do 15th, do May 8th.	1835, do do 15th, do May 8th.
1834, do do 17th, do April 6th.	1834, do do 17th, do April 6th.
1833, do do 19th, do do 23d.	1833, do do 19th, do do 23d.
1832, do do 25th, do do 27th.	1832, do do 25th, do do 27th.
1831, do do 16th, do May 8th.	1831, do do 16th, do May 8th.
1830, do do 20th, do April 6th.	1830, do do 20th, do April 6th.
1829, do May 2d, do May 10th.	1829, do May 2d, do May 10th.
1828, do March 27th, do April 1st.	1828, do March 27th, do April 1st.
1827, do do 21st, do do 21st.	1827, do do 21st, do do 21st.

The commissioners of the canal fund, in their recent report to the Legislature, state that the gross amount of tolls received during the season of navigation was..... \$1,775,747 57
and in 1839..... 1,616,382 42

Increase 9 3-10 per cent..... \$159,365 55
The amount which has been disbursed by the superintendents of repairs during the year ending January 1st, 1841, is \$412,979 48.

